DOCUMENT RESUME

ED 052 517 80 EA 003 540

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TITLE Financing Vocational Education in the Public Schools. National Educational Finance Project Special Study No. 4.

INSTITUTION California Univ., Los Angeles. Graduate School of Education; National Educational Finance Project, Gainsville, Fla.

SPONS AGENCY Office of Education (DHEW), Washington, D.C.

PUB DATE 70

NOTE 240p.;Complete version of Chapter 4 in EA 003 538 See Above

EDRS PRICE EDRS Price MF-$0.65 HC-$9.87

DESCRIPTORS Accounting, Costs, *Educational Finance, Educational Objectives, *Educational Planning, Educational Programs, Enrollment Projections, Federal Aid, Federal Legislation, *Program Costs, State Programs, State Surveys, Statistical Analysis, *Trade and Industrial Education, *Vocational Education

IDENTIFIERS Elementary Secondary Education Act Title V, ESEA Title V

ABSTRACT

The primary objectives of this NEFP satellite study on vocational education were to assess the need for vocational education, to develop a program accounting system, to project the cost of vocational education in 1980, and to describe the allocation of Federal vocational education funds. A method for projecting costs of vocational education was developed from observation of vocational education programs in 15 States and from statistical information provided by the USOE. Related documents are EA 003 538, EA 003 539, EA 003 541, EA 003 542, and EA 003 543. Funds for this research were provided by an ESEA Title V grant, (Pages 136 and 137 may reproduce poorly because of marginal legibility.) (Author/RA)

ED052517

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FINANCING VOCATIONAL EDUCATION
IN THE
PUBLIC SCHOOLS

Erick L. Lindman

NATIONAL EDUCATIONAL
FINANCE PROJECT

Special Study No. 4
Published by
Graduate School of Education
University of California
Los Angeles

1970

EA 003 540

FOREWORD

Development of Alternate Models for Financing Vocational Education is funded by a contract between the U.S. Office of Education and the University of California at Los Angeles. It is one of eleven satellite studies which comprise the National Education Finance Project, the most comprehensive study of school finance on all levels of education since the 1930's. The purpose of the three-year national project is "to devise models of school finance which can be utilized by educators and legislators in evaluating existing methods for financing education at the state and Federal levels." This publication represents the outcome of the first year's work for this satellite study.

The compilation of Financing Vocational Education in the Public Schools was the result of a joint effort on the part of the staff at UCLA which worked on the project. However, specific individuals contributed their unique talents to various sections of the work.

The chapters entitled "The Image of Vocational Education" and "Federal Contributions to Vocational Education" were written by the Assistant Director, Art Berchin. Leonard Shymoniak made a significant contribution to the method of projecting vocational education enrollments for 1980, and Paul Gilbert helped to project the 1980 vocational education costs. Marvin Heinsohn's assistance on the allocation of Federal vocational education funds as well as Daniel Aldrich's work on the program accounting procedure are also gratefully acknowledged.

The individual state reports which make up the second part of this work were written by the staff after visits to the various state departments of education. In this connection, I wish to thank the many individuals who give so much of their valuable time to the staff during the course of these visits. Their knowledge of the workings of vocational education in their respective states was crucial in order to assemble these reports.

Finally, I wish to join with the staff in thanking Mr. Tom Dewey for serving as editor and Miss Janet Zieschang for typing the major portion of the manuscript. The effort they both gave to this project is truly appreciated.

Erick L. Lindman
Principal Investigator

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CHAPTER I

THE IMAGE OF VOCATIONAL EDUCATION

While increasing funds are becoming available to support the training of both young people and adults in vital occupations, many people are reluctant to enroll in vocational education programs. It is commonly believed that the only students who enroll in occupational education programs are those who cannot survive in the highly competitive world of college and university training. It appears, therefore, that if growing numbers of students are to be trained to meet the manpower needs of our technological society, the people at large, as well as many educators, will first have to change their view of the nature of vocational education.

Historically, Americans have held vocational education in low esteem. Most Americans who emigrated from Europe and Asia felt that schooling would enable their children to improve their social position. They wanted them to enter the professions, or to become "white collar" workers, something that had not been possible in their native countries. Many of these "blue collar" immigrants conceived of vocational education as being designed for "blue collar" workers only, and they developed the attitude that vocational education was for other children, not their own.

The disparagement of vocational education was reinforced by the way it had been defined in the past, and the narrow goals that had been established for various programs. Even today, despite such relevant, contemporary definitions of vocational education as, "the successful transmission of man's increasing knowledge and ability to control and utilize the forces and materials of an industrial culture,"[1] a definition that clearly implies academic proficiency, the general public views vocational-technical education far more narrowly.

Several plain facts may be cited as reasons for this misconception. First, the definition of vocational education was restricted by the limited amount of Federal funds available. More liberal funding would have led to broader definitions. Second, as Federal monies were distributed among all the states, limitations had to be set on their use. Third, narrow definitions made it easier for both legislators and educators to focus on areas with which the nation was especially concerned.

A brief look at some definitions of vocational education will reveal that over the last fifty years, although occupational training programs have broadened to include the teaching of more and more skills, the image of vocational education in the public mind has changed very little.

In 1917, the Smith-Hughes Act, one of the first implementations of Federal aid to schools below the college level, and amendments to this Act (George-Reed Act of 1929, George-Ellzey Act of 1934, George-Deen Act of 1936, and George-Barden Act of 1946) defined vocational education so as to make it distinct from general education. Under these acts, vocational education meant courses of instruction to develop skills for specific occupations exclusively. In its 1919 State Plan for Vocational Education, the California State Board of Education wrote: "Instruction may be given only in such subjects as will increase skill or knowledge in the occupation in which the worker is engaged as his daily employment, or as will lead to promotion or advancement in that work."[2] Other states had similar restrictions in their plans for those classes which legitimately could be funded for occupational education. Thus, general typing could not be federally supported because it did not train students for one specific occupation. However, an advanced typing course could be financed from vocational funds, as it trained students to improve their skills in specific vocations.

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[1] Herbert Righthand, "What Research Has to Say for Industrial Education," Journal of Industrial Education, Volume 2, Number 1 (Fall, 1964), p. 5.

In order to qualify for Federal funds, even supplemental courses had to be related to specific occupations and to the skills required for success in those occupations. For example, California's State Plan specified as follows, regarding occupations in trades and industries: "In a course such as printing the most important of the supplemental subjects is English. Unless it can be demonstrated that the usual high school courses in English do not meet the needs of the printer, this subject will not be given special aid."[3]

The social and economic factors which affected conditions in the United States between 1920 and 1960 changed the function of vocational education. As Ginzberg said, "Technology aside, significant changes took place as a result of the Depression, the New Deal, World War II, the advances in the economy, and the demographic and cultural changes which accompanied these political and economic shifts."[4] Vocational education objectives were affected by program extensions to serve more classes of people while, at the same time, broader categories of offerings were provided. The changing aspects of industry called for skilled workers with broadened understanding. Some states, such as Oregon, for example, began to make the conventional programs more flexible so they could develop understandings relevant to clusters of fields. Further, the rapid obsolescence of occupational skills increased the need for continuous education and retraining, and so both general and vocational education had to provide such programs and instill in students the desire to continue their learning. This latter necessity led to the broadening of vocational education and brought its goals closer to those of general education.

In 1960, vocational education had to be broadened significantly because of population movements; economic developments in agriculture, mining, manufacturing, and the service occupations; developments in education, and changes in technology which caused jobs to vanish as well as to emerge. The new worker needed more scientific knowledge. Technological development led to the replacement of the routine production worker, who

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2. California Board of Education, State Plan for Vocational Education (Sacramento: California, 1919), p. 40.
3. Ibid., p. 33.
4. Eli Ginzberg, "Social and Economic Trends," Vocational Education, Sixty-Fourth Yearbook of the National Society for the Study of Education, Part I (Chicago: University of Chicago Press, 1965), pp. 22-23.

had done monotonous work on assembly lines, by complex machines. In response to the workers' need of more knowledge, the definition of vocational education was broadened further. Yet, despite these basic changes in its structure, its image stayed the same as it had been in the past.

The Vocational Education Acts of 1963 and 1968 authorized substantial increases in Federal funds by broadening the purpose of various programs. The thinking behind these changes is readily apparent in the definition of vocational education in a report of the Advisory Council to the Subcommittee on Education of the Committee on Labor and Public Welfare of the United States Senate, issued in March, 1968. In its report, the Council suggested that the objectives of vocational education should include development of the individual, as well as meeting the needs of the labor market. Vocational education, therefore, said the Council, is related to those aspects of educational experience which help a person to (1) discover his talents, (2) relate his talents to the world of work, (3) choose an occupation, (4) refine his talents, and (5) use his talents successfully in employment.

Stated general goals in many state plans for vocational education still emphasize specific occupational skills. For example, in Utah, one major goal is "to develop the skills necessary to perform effectively in one's chosen occupation." New York's State Plan reflects the original definition in its goal, "to assist in the creation of a skilled labor force, adequate to meet manpower needs at the national, state, and local levels." In California, one of the state goals is, "to prepare individuals for enrollment in advanced vocational and technical education programs." New York again reflects this old definition in the goal, "to develop skills needed for success in specific occupations and groups of occupations, including entry-level skills for those seeking immediate employment."

Other state plans also echo this earlier definition of vocational education in one or more of their stated goals. However, most objectives today rest upon much broader definitions than the teaching of skills for specific occupations. One of the goals stated in Utah's Plan is as follows: "To develop within the individual the personal-social traits which will help him in relating well to other people, both on and off the job, and in making him a good citizen and one who can enjoy and appreciate the finer things in life." One of Oregon's broad goals is: "To provide all with ample opportunities to explore the knowledge, skills, technical requirements, working conditions, and political and social environments and responsibilities of each of the career fields that are open to them." New York reflects this more comprehensive definition in its goal, "to assist in the development of skills in personal, social, and civic relationships needed for full participation in society as a worker, family member and citizen." Washington sets forth two goals which, at their core, reflect this new attitude. One emphasizes the need "to provide programs, services, and activities which assist each individual to recognize and achieve his highest potential." Another stipulates that vocational education programs should "provide services and activities which will insure that each individual student acquires a basic understanding of our economic structure with specific emphasis on how the system affects him as an individual."

All of these contemporary goals have one striking similarity: they are very close to the goals that all states have established for their general education programs. Assisting toward the blending of the goals of general and vocational education was the undeniable fact that states were emphasizing academic achievement in college preparatory courses as the major purpose of their high school programs. Chase contended that American education was preoccupied with the 20 percent of this country's youth who completed a college education and ignored the 80 percent who were "learning to be unemployable."[5] In order to meet the needs of this overwhelming majority of students, vocational education had to be broadened significantly. New York, in its 1971 State Plan, acknowledges the broader purpose of vocational education when it specifies that "a common purpose of occupational education and education in general must be a development of students' ability to evaluate their own aptitudes, interests, and abilities in relation to the multitude of occupational opportunities in the modern economy, and to make appropriate educational and occupational decisions on the basis of this self-evaluation." The United States Department of Health, Education, and Welfare sees the relationship between vocational and general education in the following light:

> Liberal education and vocational education are both essential aspects of the problem of preparing an individual for living and for earning a living; they cannot be thought of as hostile or mutually exclusive enterprises. An educational program which recognizes value in both liberal education and vocational education in most desirable for the attainment of future individual and national goals.[6]

In 1970, state education leaders believe that the teaching of trade skills should not be the only concern of vocational education, and yet the public image of vocational education remains what it was in 1917. A major challenge facing education in every state today is the necessity to reshape the image of vocational education, to bring about its acceptance as an integral part of every student's total education.

Ironically, in every major effort to formulate goals for modern secondary education in the United States, vocational education has been awarded a prominent place. In 1917, "vocational competence" was included among the seven cardinal principles of secondary education. During the 1950's, the need for a "salable skill" was among the ten imperative needs of youth. Yet despite enthusiastic declarations, enrollments in vocational education programs in public schools remain relatively low. These enrollments will not increase, even in those states which are projecting enrollment gains five years hence, unless the image of vocational education improves, and vocational education comes to be accepted as an essential part of the total education of all American youth.

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5. Edward T. Chase, "Learning to Be Unemployable," *Harper's Magazine*, Vol. 33 (April, 1963), p. 226.
6. U.S., Department of Health, Education, and Welfare, *Education for a Changing World of Work*, (Washington: Government Printing Office, 1963), p. 5.

CHAPTER II

FEDERAL CONTRIBUTIONS TO VOCATIONAL EDUCATION

Federal activity in vocational education has a long history, but its most significant legislation has been enacted since 1914. Federal legislation before 1914 included the First and Second Morrill Acts, the Hatch Act, and the State Marine School Act, which dealt specifically with the training of college students in vocations such as agriculture, the mechanical arts, and seafaring. Their major contribution was not to establish the purposes and procedures for financing vocational education which have influenced later legislation--the Smith-Hughes Act deserves this honor, perhaps--but rather, their real contribution was to establish a precedent for the Federal Government's participation in the area of education, particularly, vocational education. These acts that came before 1914 facilitated the passage of numerous acts on vocational education as the twentieth century progressed, and helped to bring us to our present position.

SMITH-LEVER ACT (1914)

This act (also called the Agricultural Extension Act) provided for a program of cooperative extension work in agriculture and home economics. It stipulated that "cooperative agricultural work shall consist of the giving of instruction and practical demonstration in agriculture and home economics to persons not attending or resident in the colleges in the several communities, and imparting to such persons information on such subjects through field demonstrations, publications, and otherwise."[1]

The Act authorized $4,580,000 per year to be distributed on the basis of agricultural population. The statute provided continuous annual appropriations to match with a Federal dollar every state dollar spent for extension training. Between the years 1914 and 1925, the Federal Government contributed $40,680,000 as a subsidy under this Act.

The Smith-Lever Act helped to liberalize and democratize the land-grant colleges by providing aid for needed training in demonstration and project work at the farm.[2] Previously, all Federal monies for land-grant colleges could be spent only for professional training of candidates for a degree in technical subjects. Under the Agricultural Extension Act, these colleges began training the farmer and his family on the home acres.

SMITH-HUGHES ACT (1917)

This Act (also called the National Vocational Education Act) provided vocational education and home economics training for high school students.

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[1] Gilman G. Udell (compiler), Laws Relating to Vocational Education and Agricultural Extension Work (Washington: Government Printing Office, 1962), p. 1.

[2] Layton S. Hawkins, Charles A. Prosser, and John C. Wright, "Smith-Lever Act (1914)," Development of Federal Legislation for Vocational Education, compiler: J. Chester Swanson (Chicago: American Technical Society, 1951), p. 23.

The Act stipulated that the Federal monies could be used for the following purposes: (1) to pay salaries of teachers, supervisors and directors of agricultural subjects; (2) to pay the salaries of teachers of trades, home economics, and industrial subjects; (3) to prepare teacher-trainees in the subject areas of agriculture, home economics, and trades and industries; (4) to study problems connected with the teaching of these areas, and (5) to pay for the administration of the law.

The National Vocational Education Act established the Federal Board for Vocational Education which was composed of the Postmaster General, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, and the Secretary of Labor. Each state receiving monies was to submit its plan for vocational education to this Federal Board of Vocational Education. During 1917-22, the states revised and resubmitted their plans annually. In 1922, the Federal Board suggested a change in this procedure and asked the states to submit their plans for a five-year period.

The National Vocational Education Act made two important contributions to Federal and state cooperative participation in education. First, the Act was one of the first extensions of Federal aid to schools below the college level; and, secondly, it helped to involve the Federal Government in the payment of teacher salaries by using the principle of matching funds.

AMENDMENTS TO THE SMITH-HUGHES ACT

The National Vocational Education Act was amended twice by Congress, once in 1917 and again in 1935. Neither of these two amendments changed or repealed the basic provisions of the Smith-Hughes Act. The first amendment corrected an oversight on the part of the original framers of this legislation, who did not realize that specific authorization must be included in Federal legislation for funds which are used for the purchase of periodicals and reference books. The second amendment changed the administrative appropriations in Section 7 to an annual authorization. This second amendment was part of general legislation passed in 1935 which made certain permanent appropriations subject to annual consideration and appropriation by Congress.

The National Vocational Education Act was also amended three times by executive order with the consent of Congress. None of these amendments affected the fundamental purposes of the Act. The first executive order occurred in 1932 when President Hoover proposed to transfer the powers and duties of the Federal Board for Vocational Education to the Department of the Interior. President Roosevelt proposed the second executive order in 1933 which changed the Federal Board for Vocational Education from an administrative board to an advisory board. The third executive order regarding the Smith-Hughes Act was issued by President Truman in 1946. This order abolished the Federal Board for Vocational Education and all its functions.

GEORGE-REED ACT (1929)

This Act provided for the further development of vocational education throughout the nation. This legislation was the result of agricultural and home economics leaders who urged Congress to increase the amount of Federal aid to the states for these two programs.

GEORGE-ELLZEY ACT (1934)

This Act also provided for the further development of vocational education throughout the nation. The legislation was the result of political lobbying by the American Vocational Association. The money was allotted on the basis of the size of each state's farm population, rural population, and non-farm population. The Department of the Interior was given $100,000 to carry out the provisions of the Act.

GEORGE-DEEN ACT (1936)

Similar to the George-Reed Act and the George-Ellzey Act, this Act provided for the further development of vocational education in the nation. It also allotted money on a matching basis according to the size of each state's farm, rural, and non-farm populations. Under this Act, funds were appropriated for the salaries and necessary travel expenses of teachers, supervisors, and directors of teacher training in distributive occupational subjects.

GEORGE-BARDEN ACT (1946)

This Act amended the George-Deen Act of 1936. This legislation differed from previous vocational education legislation in a number of ways. In the George-Barden Act, only one appropriation was made for each of the four program fields; there was no separate appropriation for teacher training. Each state was to make its own allotment in a given field to be used for teacher training. Under the George-Barden Act, Federal funds could be used for maintenance of administration and supervision. This was not acceptable in the preceding legislation. Also under this Act, Federal funds could be used for the purchase or rental of equipment and supplies for vocational instruction.

MANPOWER DEVELOPMENT AND TRAINING ACT (1962)

This Act provided vocational training for the unemployed and for those whose skills had become obsolete because of shifts in market demands and other changes in the structure of the economy. As written in the legislation, the purpose of the Act was "to require the Federal Government to appraise the manpower requirements and resources of the nation, and to develop and apply the information and methods needed to deal with the problems of unemployment resulting from automation and technological changes and other types of persistent unemployment."[3]

The Act authorized the Federal Government to pay 100 percent of the coast of training unemployed workers during the first two years of the program; the third year was to be paid by the states on a matching basis.

VOCATIONAL EDUCATION ACT (1963)

This Act was intended to provide for the manpower needs of the Sixties. During the 1960's, researchers predicted that 13.5 million new jobs would open up and about an equal number of workers would be needed

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3. Udell, op. cit., p. 361.

to replace those who retired or died.[4] These people needed to be prepared through education and training to carry out their job duties and responsibilities. It was estimated that there were 26 million new workers and 4 million unemployed and under-employed workers who needed some appropriate kind of vocational training.[5]

In order to strengthen and improve the quality of vocational education and to expand the vocational education opportunities in the nation, four categories of eligible persons were created: (1) those who attended high school; (2) those who had completed or left high school but were free to study full-time in preparing for a job; (3) those who had already entered the labor market but needed training or retraining, either to hold their jobs or to get ahead, and (4) those who had handicaps--academic or socioeconomic--that prevented them from succeeding in the regular vocational education program.

Ninety percent of the funds were appropriated among the states on the basis of a computation that took into account two factors: (1) the number of persons in each of the age groups eligible for vocational education, and (2) the per capita income. The states, beginning in 1965, were required to match, in state or local funds, all Federal funds they had allocated in their plans for each of the purposes as set forth under the Act. Each state was also required to use a certain percentage of its total allotment either for construction of area vocational schools, or for vocational education for persons who had graduated from high school, or who had dropped out before graduation and were available for full-time study in preparing for a job.

The Vocational Education Act accomplished four revisions in federally supported vocational education programs: (1) Vocational programs were expanded in terms of facilities, staffs, and classroom space; (2) Curriculum was updated to meet the newer job needs in such fields as computer programming and other highly technical occupations; (3) The whole concept of vocational education was upgraded by including more types of students in the programs; and (4) New pioneer programs were developed, such as vocational boarding schools and work-study programs, which provided subsistence pay and part-time work while students attended school.

VOCATIONAL-EDUCATION AMENDMENTS (1968)

This legislation amended the Vocational Education Act of 1963. Its general purpose, identical with that of the 1963 Act, was to authorize:

> Federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their

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4. Hawkins, op. cit., p. 107.
5. Ibid.

> formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, those with special educational handicaps, and those in post-secondary schools--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.[6]

While the Act appropriated additional funds for the various programs, the same groups of students were included in the 1968 Amendments as were included in the 1963 Act. Also, the allotment formula remained the same as in the 1963 Act. However, in this legislation, the Federal Government identified specific purposes that must be funded: (1) 25 percent of funds in excess of the fiscal year 1969 appropriation level, but not less than 15 percent of the funds available for the State Vocational Education Programs, must be used for the disadvantaged; (2) 25 percent of funds in excess of the fiscal year 1969 appropriation level, but not less than 15 percent of the funds available for State Vocational Education Programs, must be used for post-secondary vocational education; and (3) 10 percent or more of the funds available for State Vocational Education Programs must be used for the handicapped.

The provisions for the Vocational Education Amendments are divided among four titles. Title I describes the general provisions and authorizations in the legislation. Under this Title, in addition to the authorization for the regular vocational education programs, are those authorizations for the following: (1) research and training in vocational education; (2) exemplary programs and projects (which were not originally part of the 1963 Vocational Act); (3) residential vocational education schools; (4) consumer and homemaking education; (5) cooperative vocational education programs (a new provision that emphasizes school-employer arrangements); (6) work-study programs for vocational education students, and (7) curriculum development in vocational and technical education.

Title II amends the Education Profession Development Act of 1965 by adding a section referred to as the Training and Development Programs for Vocational Education Personnel. This law authorizes the Commissioner of Education to award support to vocational educators for full-time advanced study for a period not to exceed three years. Also, the Commissioner is authorized to make grants to State Boards of Education for exchange programs, institutes, and in-service education for vocational education teachers, supervisors, coordinators, and administrators.

Title III consists of miscellaneous provisions such as the collection and dissemination of information, training teachers of the handicapped, a program consolidation study, a Job Corps study, and a Head Start study.

Title IV repeals all earlier vocational education acts with the exception of the Smith-Hughes Act. However, all appropriations for the Smith-Hughes Act were appropriated by the Vocational Education Amendments of 1968.

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6. U.S., Congress, Public Law 90-576, October 16, 1968.

Perhaps the major contribution of the Vocational Education Amendments of 1968 was to provide a specified measure of vocational education training for the disadvantaged and the handicapped. While many states are presently having difficulties in identifying their disadvantaged students, they all agree that for the first time there is a major attempt through this legislation to prepare these students adequately for the world of work.

From what has occurred in the half century since the passage of the Smith-Lever Act, it can be predicted that additional legislation for vocational education will be enacted. The form this legislation will take is more difficult to anticipate. However, one can be almost certain that future legislation for vocational education will continue to provide funds on a matching basis, preserving the traditional partnership between the Federal and state governments, although the matching on a traditional 50-50 basis will become less common. Also, the Federal appropriations among the states probably will begin to take into account additional factors, other than population and per capita income. Hopefully, future legislation will continue to meet the needs of our changing and growing economy and will attempt, out of necessity, to upgrade the whole concept of vocational education in our society. Finally, future legislation will help vocational education programs expand so that not only will more students be enrolled in vocational education, but also more of the needs of each student will be met. This will be especially true with those students handicapped because of physical disabilities or as a result of socio-economic conditions.

CHAPTER III

DETERMINING THE COST OF VOCATIONAL EDUCATION

The lack of uniformity among states in program accounting methods makes the ascertaining of actual amounts expended for vocational education difficult. In this section, the program accounting problem is analyzed and procedures are suggested for determining the cost of vocational education courses and programs. However, in this study, data based strictly upon this method were not available and it was necessary to base projected costs of vocational education upon estimates derived from other studies (see section on Cost Projection).

In developing a procedure for determining the cost of an instructional program, there are a number of decisions which must be made regarding what expenses to include and how to classify them.

First, however, a choice must be made between different ways of treating capital expenditures. In public school accounting, the concept of depreciation is seldom used except for the purpose of determining the insurable value of buildings and equipment. In some instances, state support for pupil transportation has included an amount for the depreciation of school buses.

The practice of permitting annual payments to a school district for depreciation of school buses is based upon the assumption that the school district will accumulate a replacement reserve which will be available when the bus is to be replaced. Experience indicates, however, that such reserves become the target of demands for reductions in the school tax rate, or for increases in teachers' salaries. Consequently, a reserve fund is seldom retained for its intended purpose. For this reason, it is usually more satisfactory for the state to contribute toward the purchase of transportation equipment during the year the school district actually makes a purchase and not annually on a depreciation basis.

Similarly, if the state is to contribute to the purchase of instructional equipment for vocational education, the contribution should be made when the equipment is purchased--not as annual allowances for depreciation during the life of the equipment. Therefore, the cost of vocational education developed in this study excludes annual depreciation allowances. Only current expenditures, including repair and replacement of equipment, are calculated in the annual cost per student for vocational education.

To determine the cost of vocational education, it is necessary to classify all current public school expenditures into three categories:

a. Direct costs of instructional programs
b. Indirect costs of instructional programs
c. Costs not charged to instructional programs

Under the accounting system recommended for public schools by the U.S. Office of Education, all current expenses are divided into nine major classifications:

1. Administration
2. Instruction
3. Attendance and Health Services

4. Pupil Transportation Services
5. Operation of Plant
6. Maintenance of Plant
7. Fixed Charges
8. Food Services and Student-Body Activities
9. Community Services

The "Instruction" category usually accounts for two-thirds of all current expenditures, and "Administration" for three to four percent of the current budget. Program cost accounting would be simple and precise if all the expenditures classified as "Instruction" could be charged as direct costs to the various instructional programs and all of the expenditures for "Administration" could be prorated among the programs as indirect costs. Unfortunately, this procedure cannot be used at present because "Instruction" includes some indirect costs and "Administration" includes some direct costs.

In the public school accounting guide published by the U.S. Office of Education, under the heading of "Instruction" are the following subheadings:

1. Salaries
    a. Principals
    b. Consultants or Supervisors
    c. Teachers
    d. Other Instructional Staff
    e. Secretarial and Clerical Assistants
    f. Other Salaries for Instruction
2. Textbooks
3. School Libraries and Audiovisual Materials
4. Teaching Supplies
5. Other Expenses

Salaries for teachers, supervisors, other salaries for instruction, expenditures for textbooks, teaching supplies, and other expenditures for instruction are regarded as direct costs of instructional programs. However, salaries of principals, their secretarial and clerical staff, and other instructional staff (librarians, guidance and psychological personnel), as well as most costs for school libraries and audiovisual materials, cannot be identified with any one instructional program. For this reason, it is not possible to charge these items as direct costs. Instead, they are charged as indirect costs and prorated among the various instructional programs maintained by the institution.

Similarly, most of the expenditures classified as "Administration," such as the superintendent's salary and the cost of the office of business administration, are clearly indirect costs and should be prorated among all the instructional programs. However, some administrative services, such as salaries paid to a director or assistant superintendent of vocational education, are associated with a single instructional program. Should these salaries be charged as a direct cost of vocational education, or classified with the superintendent's salary under "Administration," and prorated as direct costs?

If the director of vocational education performs duties similar to those performed by other members of the superintendent's staff, a persuasive case can be made for charging his salary to general administration, prorating it with the other costs of "Administration." However, the director of vocational education or special education usually performs additional administrative services. These programs often require special reports to qualify for categorical aids. At the end of the year, additional reports must be prepared describing and evaluating the program. Moreover, these programs often require large amounts of special equipment and supplies, increasing administrative burdens related to equipment procurement and maintenance. As a result, administrative costs of these programs are relatively large. This fact would be obscured if all administrative costs were consolidated and then prorated as indirect costs.

For these reasons, expenditures for administration in this study are divided into two categories:

1. General Administration
2. Special Program Administration

"General Administration" expenditures are classified as indirect costs and prorated among all instructional programs. "Special Program Administration" costs are charged as a direct program cost and include the following:

1. Program Area Director's Salary
2. Director's Secretarial Salaries
3. Program Area Assistant Director's Salary
4. Director's Travel and Office Supplies

Hopefully, when the U.S. Office of Education issues a revised accounting guide for public schools, the broad category entitled "Instruction" will be redefined to include all direct costs of instructional programs. If the existing expenditure category called "Instruction" is replaced by a similar but slightly different category called "Direct Costs of Instructional Programs," program accounting in public schools would be facilitated. The revised category would include special program administration as well as repair and replacement of instructional equipment.

Another class of expenditures, pupil transportation, raises questions:

1. Should the cost of transportation to and from school be classified as an indirect cost of instructional programs or as a "student service" not charged to the instructional programs?

2. Should special transportation costs, associated exclusively with an instructional program, be charged as a direct cost of that program?

To answer these questions, one must ascertain whether a state provides aid separately for pupil transportation. If separate aid is provided, classifying pupil transportation costs as an indirect cost of a categorically-aided instructional program would lead to duplicate reimbursements for transportation. Since most states grant funds to school districts for pupil transportation, based upon cost incurred for providing such a service, in this study pupil transportation is regarded as a "Pupil Service" and not charged to the instructional programs.

The following expenditure accounts are also classified as "Pupil Service" or "Community Service" and are not charged to instructional programs:

1. Attendance and Health Services
2. Food Services and Student-Body Activities
3. Community Services

The expenditure account "Maintenance of Plant" is subdivided into four categories:

1. Salaries
2. Contracted Services
3. Replacements of Equipment
4. Other Expenses

"Salaries," "Contracted Services," and "Other Expenses," are classified as indirect costs of instructional programs. However, expenditures for replacing instructional equipment usually can be identified with separate instructional programs and, therefore, are regarded as a direct cost of instructional programs. The cost of replacing non-instructional equipment, however, is classified as an indirect cost.

The accounts "Plant Operation" and "Fixed Charges," like the princiapls' salaries, cannot be identified with any one instructional program area. For this reason, these accounts are also classified as indirect costs of instructional programs. Ideally, fringe benefits for school employees, currently included under "Fixed Charges," should be charged with salaries, but this is seldom possible under present reporting procedures.

Using the above procedure, it is possible to classify all current expenditures of typical public secondary schools into three categories:

1. Direct costs of instructional programs
2. Indirect costs of instructional programs
3. Costs of student services not charged to instructional programs

The items which are included as direct costs of instructional programs are shown in Exhibit I. It will be noted that alternate ways are suggested to obtain the amount for teachers' salaries. For some purposes, the actual salaries paid to vocational education teachers are used; for other purposes, the number of vocational education teachers employed is multiplied by the average salary paid secondary school teachers. The latter method is especially important when the indirect costs are computed as a percent of the direct costs.

An estimated allocation of all public secondary school current expenditures between direct and indirect costs of instructional programs is shown in Exhibit II. It will be noted that approximately 10% of the cost of "Administration," 90% of the cost of "Instruction," and 10% of the cost of "Plant Maintenance" are classified as direct costs of instructional programs. On the other hand, "Attendance and Health Services," "Pupil Transportation," "Food Services," and "Student-Body Activities" were all regarded as "Pupil Services" and not included as an indirect cost of instructional programs. On this basis, the indirect cost of instructional programs in most high schools varies from approximately 45% to 60% of the direct costs.

Next, it is necessary to clarify the distinctions between (1) incremental cost, (2) excess cost, and (3) total cost. These distinctions are relevant to plans for financing vocational education. For example, the state may wish to contribute to local educational agencies each year for the support of vocational education amounts equal to:

1. The increased current expenditures (or incremental cost) incurred in establishing and maintaining an approved vocational education program.

2. The difference (or excess cost) between the cost per student enrolled in vocational education courses and the corresponding cost per student enrolled in "general education" courses.

3. The total current cost of operating an approved vocational education program.

In this first case, the state reimbursement is intended to contribute an amount to the school equal to the amount it would save if the vocational education program were eliminated. Under this policy, the state seeks to be strictly neutral. The vocational education curriculum is made available at no additional cost to the school district, but there is no financial advantage to the school which chooses to establish a vocational education program. Categorical aid is limited to the actual additional costs incurred.

The excess cost concept mentioned in (2) above is closely related to incremental cost, but it differs primarily in the way indirect costs are apportioned. In the incremental cost approach, only additional indirect costs which are actually incurred are included. In the excess cost approach, all indirect costs are apportioned among all programs and a proportionate share of indirect costs is charged to vocational education courses, even though no identifiable additional indirect costs have been incurred.

The excess cost is usually determined on a per student basis. After the total cost of vocational courses has been determined, the amount is divided by the full-time equivalent number of students served by the program. From this cost-per-student is deducted the corresponding cost-per-student enrolled in "general education" courses.

For example, if the cost of a vocational education course is $1200 per student and the cost-per-student enrolled in general education courses is $800, the excess cost is $400 per student.

Determination of the excess cost of vocational education requires a determination of the total current cost of vocational education, the number of students served (on a full-time equivalent basis) by the vocational education program, and the corresponding cost-per-student of general education courses.

In the foregoing discussion of excess costs, the definition used is that which the U.S. Office of Education advocates: ". . . in excess of the cost which may be normally attributed to the cost of education in a local educational agency." However, there are a number of other ways in which excess cost is defined. In California, the excess cost of vocational education is obtained by comparing the cost of vocational education students in a local educational agency to the amount of reimbursement that agency would receive through the State Foundation Program. In other states, the excess cost is determined by comparing the cost of vocational education students in a local educational agency with the statewide average for all high school students.

Exhibit 1

Current Expenditure Items Included in the Cost of Instructional Programs

I. Direct Costs of Instructional Program

A. Program Administration

1. Program Director's Salary ________
2. Assistants' Salaries ________
3. Director's Secretarial Salaries ________
4. Travel & Office Supplies ________

(A) ________

B. Instruction

1. Program Supervisor's Salaries ________
2. Program Teachers' Salaries[1] ________
3. Other Salaries of Instruction for Program ________
4. Textbooks for Program ________
5. Teaching Supplies for Program ________
6. Other Expenses for Program ________

(B) ________

C. Maintenance of Plant

1. Repair and Replacement of Instructional Equipment for Program (C) ________

D. Total Direct Costs of Program (A + B + C) (D) ________

II. Indirect Costs (____% x D)[2] ________

III. Total Program Costs (D + II) ________

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[1] For annual reports, insert actual salaries paid to vocational education teachers; for computing indirect costs and for long-term planning purposes, substitute an amount based upon applicable salary averages.

[2] The percent used here will vary from state to state based upon actual expenditures for high schools and junior colleges.

Exhibit II

Estimated Allocation of Public Secondary School Current Expenditures Between Direct and Indirect Costs of Instructional Programs

EXPENDITURE CATEGORY	DIRECT COST	INDIRECT COST
Administration	10%	90%
Instruction	90%	10%
Attendance & Health Services*	0%	0%
Pupil Transportation Services*	0%	0%
Operation of Plant	0%	100%
Maintenance of Plant	10%	90%
Fixed Charges	0%	100%
Food Services & Student-Body Activities*	0%	0%
Community Services*	0%	0%
TOTAL CURRENT EXPENSES		

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*None of these expenditures are charged to the cost of instructional programs; instead, they are charged to "Pupil Services" or to "Community Services."

CHAPTER IV

PROJECTIONS OF VOCATIONAL EDUCATIONAL ENROLLMENTS FOR 1980

In theory, the projection of vocational education needs a decade hence should present little difficulty, assuming the availability of needed state and national data. In practice, the assumption cannot always be made with confidence. However, the task is facilitated if insight can be gained into the following aspects of anticipated educational development over the period for which the projections are to be made: (1) policy changes made by Federal, state and local governments, which affect the scope, quality, extent, and image of various programs in the public school curriculum; (2) population growth, composition, and mobility at the state and interstate level; and (3) an estimate of the percent of the school-age population enrolled in public and non-public schools.

Accurate prediction of policy changes over the coming decade is particularly difficult and largely beyond the control of anyone attempting to project program needs. In the area of vocational education, the problem was made somewhat more manageable for this study through the efforts of the various state divisions of vocational education. In their annual state plans, each state had attempted to identify and specify goals and objectives for the 1969-1975 fiscal year period. Objectives specified in the 1970-71 plans were quantified in terms of projected enrollments for 1975, and adapted to the method of projection used in this report. The simple knowledge of state goals for 1975, however, did not eliminate all the obstacles to making reasonable projections. As can be readily seen, there was no real assurance that state goals were not over-optimistic. Moreover, little evidence was apparent for support of judgments as to the degree to which expressed goals were realistic in terms of planning, or the extent to which the objectives would be realized by 1975. Nevertheless, these state goals served as the best indicators of future trends in the United States, and considerable use was made of them in estimating vocational education program needs in 1980.

The second problem, that of obtaining reliable demographic estimates, state by state, was complicated by the fact that the 1970 Census Bureau statistics were not available at the time of the study. As population estimates made prior to this study were based mainly on the 1960 census and trend data as old as those of 1956, some question was raised about the accuracy of the estimates. The problem was accommodated to a degree by means of an adjustment factor.[1]

Difficulties arose also in gaining insight into the third aspect of development, the estimating of school enrollment. According to NEA reports, the percent of the school-age population enrolled in public and non-public schools varies greatly among states, and has tended to increase, generally speaking, at a slower rate in recent years than that of a decade ago. As this percent figure is related in varying measure to such factors as state kindergarten policies, socio-economic and environmental conditions affecting early school dropout incidence, and attendance in non-public schools, difficulty was experienced in determining how to predict this parameter for the separate states in 1980. As the 1969 NEA school statistics report provided the most up-to-date source of data useful for estimating this parameter, it was assumed to be reasonably sound and was the basis for this study's projection of school enrollments over the next ten years.

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[1] The adjustment factor was derived from 1975 data to reconcile discrepancies in the 1980 projections of this study. It consisted of a ratio of state-based projection to census-based projection for each state in secondary vocational education. Discussion of the adjustment factor will follow in this chapter.

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The procedure for estimating enrollments in secondary, post-secondary, adult and special needs vocational education programs, state by state, was a two-stage calculation. The first stage involved projecting vocational education enrollments and comparing these projections with those made by the individual states for the same year. Such a comparison helped to determine an adjustment factor which, when applied, eliminated discrepancies in the stage two calculations--the projection of national education enrollments in 1980. The underlying assumption here was that projections by state divisions of vocational education were more realistic than projections based on Census Bureau statistics only. It could be assumed that state departments of education were directly or indirectly concerned with the problem of predicting enrollments, and that their staffs had access to local sources of information not so readily available to outside agencies. However, Census Bureau data could not be overlooked because they served as the major source for projecting school enrollments for 1980. Even though the census data contain some discrepancies, they nonetheless provide the best basis on which to develop a state by state projection of secondary school enrollment for 1980.

The second stage of the calculation involved the projection of vocational education needs for 1980. Except for the addition of the adjustment factor explained above, the procedure used to project enrollments for 1975 was the same as that used for the 1980 calculation.

ESTIMATING STATE BY STATE PUBLIC SCHOOL ENROLLMENTS

Table 4-1 and 4-2 show estimates of the total state by state public school enrollment (K-12) for 1975 and 1980, respectively. The calculations, as illustrated in these tables, estimate total K-12 enrollment for a state as a product of the following three factors:

1. The estimated total population of the state as projected by the U.S. Census Bureau, Series II-B for the indicated years;
2. The estimated percent that the school-age population (5-17 years) is of the total state population for the indicated years (this estimate was obtained from the U.S. Bureau of the Census, Series P-25 report and was assumed to remain constant for all states at 24.04 and 24.44 for 1975 and 1980, respectively);
3. The estimated percent that the total public school fall enrollment (K-12) is of the total school-age population (5-17 years) of the state for the indicated years (this estimate was determined from the NEA Research Report 1969-R15; estimates were assumed to remain unchanged for 1975 and 1980; comparable estimates from other sources were not available).

Table 4-1

Estimated K-12 Enrollment by State for 1975, Based on Census Reports and National Education Association School Statistics (in Thousands)

State (1)	Estimated Population All Ages for 1975 (2)	Estimated Population 5-17 Years of Age (3)	Estimated Percent K-12 Enrollment is of Total Popu. 5-17 years (4)	Estimated Public School Enrollment K-12 for 1975 (5)
U.S. TOTAL	222,802.0	53,561.3	(86.2)[a]	46,164.9
Alabama	3,938.0	946.7	85.1	805.6
Alaska	331.0	79.6	88.6	70.5
Arizona	2,099.0	504.6	87.6	442.0
Arkansas	2,188.0	526.0	88.7	466.6
California	23,805.0	5,722.7	93.6	5,356.4
Colorado	2,330.0	560.1	95.1	532.7
Connecticut	3,374.0	811.1	85.6	694.3
Delaware	613.0	147.4	88.2	130.0
District of Columbia	935.0	224.8	75.7	170.2
Florida	7,552.0	1,815.5	90.0	1,634.0
Georgia	5,147.0	1,237.3	88.9	1,100.0
Hawaii	821.0	197.4	79.8	157.5
Idaho	765.0	183.9	88.6	162.9
Illinois	11,879.0	2,855.7	79.3	2,264.6
Indiana	5,435.0	1,306.6	88.9	1,161.6
Iowa	2,839.0	682.5	89.6	611.5
Kansas	2,416.0	580.8	85.7	497.7
Kentucky	3,431.0	824.8	82.6	681.3
Louisiana	4,172.0	1,002.9	79.3	795.3
Maine	1,043.0	250.7	92.5	231.9
Maryland	4,326.0	1,040.0	88.7	922.5
Massachusetts	5,870.0	1,411.1	81.9	1,155.7
Michigan	9,314.0	2,239.1	88.8	1,988.3
Minnesota	3,926.0	943.8	88.9	839.0
Mississippi	2,585.0	621.4	84.5	525.1
Missouri	4,885.0	1,174.4	87.1	1,022.9
Montana	771.0	185.3	87.8	162.7
Nebraska	1,552.0	373.1	84.6	315.6
Nevada	620.0	149.0	103.7	154.5
New Hampshire	795.0	191.1	83.6	159.8
New Jersey	8,093.0	1,945.6	82.4	1,603.2
New Mexico	1,220.0	293.3	88.3	259.0
New York	20,486.0	4,924.8	79.8	3,930.0
North Carolina	5,618.0	1,350.6	86.5	1,168.3
North Dakota	688.0	165.4	85.2	140.9

Table 4-1 (cont'd)

State	Estimated Population Total - All Ages for 1975	Estimated Population 5-17 Years of Age	Estimated Percent K-12 Enrollment is of Total Popu. 5-17 Years	Estimated Public School Enrollment K-12 for 1975
(1)	(2)	(3)	(4)	(5)
U.S. TOTAL				
Ohio	11,486.0	2,761.2	84.1	2,322.2
Oklahoma	2,666.0	640.9	95.7	613.3
Oregon	2,229.0	535.9	91.9	492.5
Pennsylvania	12,225.0	2,938.9	79.1	2,324.7
Rhode Island	965.0	232.0	81.9	190.0
South Carolina	2,889.0	694.5	85.6	594.5
South Dakota	713.0	171.4	88.9	152.4
Tennessee	4,349.0	1,045.5	87.0	909.6
Texas	12,492.0	3,003.1	87.6	2,630.7
Utah	1,209.0	290.6	94.8	275.5
Vermont	444.0	106.7	91.4	97.5
Virginia	5,233.0	1,258.0	88.4	1,112.1
Washington	3,316.0	797.2	94.1	750.2
West Virginia	1,789.0	430.1	86.0	369.9
Wisconsin	4,578.0	1,100.6	84.9	934.4
Wyoming	356.0	85.6	95.0	81.3

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a. Estimated by dividing Col. (5) total by Col. (3) total.

Sources:

Column 2: Statistical Abstract of the United States, 1969, No. 12, U.S. Department of Commerce.

Column 3: Col. (2) multiplied by 24.04 percent (based on Population Estimates, Series P-25, No. 381, December, 1967, U.S. Department of Commerce).

Column 4: Calculated from Estimates of School Statistics, Research Report 1969-R-15, National Education Association.

Column 5: By-state estimates of K-12 enrollment for 1975, Col. (3) multiplied by Col. (4).

EXHIBIT VI

STATE OF MINNESOTA
Department of Education
Vocational-Technical Division

VOCATIONAL-TECHNICAL ANNUAL REPORT FOR REIMBURSEMENT

Code XXIX-C-57
VE-2

Return original and one carbon by July 5. Please follow directions on back.

1. *(Check One)*
   - ☐ Agriculture
   - ☐ Business & Office Education
   - ☐ Distributive Education
   - ☐ Health Occupations
   - ☐ Home Ec. (Wage Earning Only)
   - ☐ Technician Training
   - ☐ Trade & Industrial Education
   - ☐ Other ______________
2. *(Check One)*
   - ☐ Secondary
   - ☐ Post Secondary
   - ☐ Adult
   - ☐ Special Needs
   - ☐ Other ______________
3. *(Check One)*
   - ☐ Apprenticeship
   - ☐ Preparatory
   - ☐ Supplemental
   - ☐ Cooperative
   - ☐ Other ______

☐ LEAVE BLANK

______________ (Name of School)
______________ (City)
______________ (County)
______________ (District No.)

4. SUBJECTS TAUGHT	5. TIME ELEMENT		6. ENROLLMENT			7. APPRENTICEABLE (OCCUPATIONS ONLY)				8. INSTRUCTOR	9. SALARY	
	Hours per Week	No. of Weeks	Total	M.	F.	Jrny-men		Learner Appren.			This Subject	Total Salary
						M.	F.	M.	F.			

To the State Board for Vocational Education, Saint Paul, Minnesota.

I hereby certify that this is an accurate annual report of the above vocational classes for the period July 1, 19____ to June 30, 19____, for which aid is requested.

______________ Recommended State Supervisor
______________ Signature - School Official
______________ Title

______________ Approved - State Director of Vocational Education
Date ______________

To the State Board for Vocational Education, Saint Paul, Minnesota

I hereby certify that this is an accurate annual report of the above vocational classes for the period July 1, 19____ to June 30, 19____, for which aid is requested.

____________ Signature - School Official ____________ Title

Recommended ____________ State Supervisor

____________ Date ____________

Approved - State Director of Vocational Education

(replaces XIII-C63)

State of Minnesota
Department of Education
Division of Vocational
Technical Education

VOCATIONAL - TECHNICAL AGREEMENT FOR REIMBURSEMENT

(Not To Be Used For Agriculture or Home Economics)

(Check One)
- ☐ Business & Office Education
- ☐ Distributive Education
- ☐ Health Occupations
- ☐ Technician Training
- ☐ Trade & Ind. Education
- ☐ Other ____________

(Check One)
- ☐ Day Post High Programs
- ☐ High School Programs
- ☐ Supplementary Training for Youth and Adults
- ☐ Apprenticeship (T & I only)
- ☐ Special Needs
- ☐ Other ____________

For Year 196__ 196__

____________ (Name of School) ____________ Dist. No. ____________ (City)

We, the local board of education, of ____________ in ____________ County, hereby enter into agreement with the State Board for Vocational Education to conduct vocational education programs as listed herein and agree to expend the amount for the salaries of teachers listed below.

It is further agreed that all class work, selection of teachers, records, and reports will be in accordance with the Minnesota State Plan for Vocational Technical Education and that all instructional supplies, equipment, buildings and materials furnished by us will be such as approved by the State Board for Vocational Education.

It is understood that the reimbursement will be discontinued when the program becomes disqualified for any failure to meet the requirements of the Minnesota State Plan for Vocational Technical Education and the unexpended balance of the reimbursement contracted for will be forfeited. We plan to budget adequate funds for equipment and other facilities for the classes which will be available to assure adequate functioning of each approved vocational teacher's work.

This agreement will become void without notice and all claims for reimbursement will be forfeited if we fail to have all annual reports and applications for reimbursement on file in the Centennial Office Building, St. Paul, Minnesota on July 3 of the year succeeding the fiscal year covered by this agreement.

1 Name of Course or Activity	2 Fee Charged	3 Beginning Date	4 Number of Meetings	5 Days of Week Class Meets	6 Time of Day Class Begins	7 Time of Day Class Closes	8 Name of Teacher	9 Salary for Each Course

No. Supplementary Sheets Attached ____________

Total Salaries for all Sheets ____________

(Continue on Agreement Supplement for Additional Courses)

Do Not Use This Space

Signed ____________ Local Supervisor or Coordinator ____________ Date ____________

Approved ____________ Superintendent or Local Director ____________ Date ____________

Signed ____________ State Supervisor ____________ Date ____________

Approved ____________ State Director, Vocational Education ____________ Date ____________

Table 4-2

Estimated K-12 Enrollment by State for 1980, Based on Census Reports and National Education Association School Statistics (in Thousands)

State (1)	Estimated Population-- All Ages for 1980 (2)	Estimated Population-- 5-17 Years of Age (3)	Estimated Percent K-12 Enrollment is of Total Popu. 5-17 Years (4)	Estimated Public School Enrollment K-12 for 1980 (5)
U.S. TOTAL	243,223.8	59,444.2	86.3	51,273.1
Albama	4,270.5	1,043.7	85.1	888.2
Alaska	369.0	90.2	88.6	79.9
Arizona	2,426.5	593.0	87.6	519.5
Arkansas	2,338.5	571.5	88.7	506.9
California	27,169.0	6,640.1	93.6	6,215.1
Colorado	2,579.0	630.3	95.1	599.4
Connecticut	3,709.5	906.6	85.6	776.0
Delaware	683.5	167.0	88.2	147.3
District of Columbia	1,045.5	255.5	75.7	193.4
Florida	8,700.5	2,126.4	90.0	1,913.8
Georgia	5,597.5	1,368.0	88.9	1,216.2
Hawaii	886.5	216.7	79.8	172.9
Idaho	833.0	203.6	88.6	180.4
Illinois	12,910.5	3,155.3	79.3	2,502.2
Indiana	5,885.5	1,438.4	88.9	1,278.7
Iowa	2,995.5	732.1	89.6	656.0
Kansas	2,560.5	625.8	85.7	536.3
Kentucky	3,635.0	888.4	82.6	733.8
Louisiana	4,612.5	1,127.3	79.3	893.9
Maine	1,112.0	271.8	92.5	251.4
Maryland	4,803.0	1,173.9	88.7	1,041.2
Massachusetts	6,319.0	1,544.4	81.9	1,264.9
Michigan	10,084.0	2,464.5	88.8	2,188.5
Minnesota	4,270.0	1,043.6	88.9	927.8
Mississippi	2,801.5	684.7	84.5	578.6
Missouri	5,221.0	1,276.0	87.1	1,111.4
Montana	834.0	203.8	87.8	178.9
Nebraska	1,640.0	400.8	84.6	339.1
Nevada	679.5	166.1	103.7	172.2
New Hampshire	867.0	211.9	83.6	177.1

Table 4-2 (cont'd)

State (1)	Estimated Population-- All Ages for 1980 (2)	Estimated Population--5-17 Years of Age (3)	Estimated Percent K-12 Enrollment is of Total Population 5-17 Years (4)	Estimated Public School Enrollment K-12 for 1980 (5)
New Jersey	8,894.5	2,173.8	82.4	1,791.2
New Mexico	1,399.5	342.0	88.3	302.0
New York	22,034.5	5,385.2	79.8	4,297.4
North Carolina	6,057.5	1,480.5	86.5	1,280.6
North Dakota	729.0	178.2	85.2	151.8
Ohio	12,509.5	3,057.3	84.1	2,571.2
Oklahoma	2,824.5	690.3	95.7	660.6
Oregon	2,404.0	587.5	91.9	540.0
Pennsylvania	12,899.5	3,152.6	79.1	2,493.7
Rhode Island	1,026.0	250.8	81.9	205.4
South Carolina	3,126.5	764.1	85.6	654.1
South Dakota	755.0	184.5	88.9	164.0
Tennessee	4,666.5	1,140.5	87.0	992.2
Texas	13,680.5	3,343.5	87.6	2,928.9
Utah	1,356.0	331.4	94.8	314.2
Vermont	478.5	116.9	91.4	106.8
Virginia	5,715.0	1,396.7	88.4	1,234.7
Washington	3,626.0	886.2	94.1	833.9
West Virginia	1,843.5	450.6	86.0	387.5
Wisconsin	4,969.5	1,214.5	84.9	1,031.1
Wyoming	391.0	95.6	95.0	90.8

Sources:

Column 2: Statistical Abstract of the United States, 1969, No. 12, U.S. Department of Commerce.

Column 3: By-state estimates of school-age population, Col. (2) multiplied by 24.44 percent (based on Population Estimates, Series P-25, No. 381, December, 1967, U.S. Department of Commerce).

Column 4: Estimates of School Statistics, Research Report 1969-R15, Table 2, National Education Association.

Column 5: By-state estimates of public school enrollment (K-12) for 1980, Col. (3) multiplied by Col. (4).

ESTIMATING VOCATIONAL EDUCATION ENROLLMENT AT THE SECONDARY LEVEL, BY STATE

Table 4-3 illustrates the calculation of state by state total enrollments in secondary vocational education programs for 1975. The projected enrollments for each state, as shown in column 5 of this table, are a product of three factors:

1. The estimated total public school enrollment (K-12) of the state for the indicated year (these by-state estimates of enrollment were calculated for 1975 in Table 4-1);
2. The estimated percent that total secondary public school enrollment (9-12) is of the total public school enrollment (K-12) of the state for the indicated year (these estimates were derived from the NEA Research Report 1969-R15 and were assumed to remain unchanged for 1975; other comparable estimates for 1975 were not available);
3. The estimated state goal in secondary vocational education as a percent of total secondary enrollment (9-12) of the state for 1975 (these estimates were obtained from each state's division of vocational education's long-range program plans and provisions, as reported in Part II, Section 5.0-6.0 in the 1969 and 1970 annual state plans).

DETERMINING AN ADJUSTMENT FACTOR

Upon comparing the projection derived in Table 4-3 to a similar projection made by state divisions of vocational education, some discrepancies were observed. It was, therefore, decided that these discrepancies could be eliminated from the 1980 calculations by the introduction of an adjustment factor developed from the 1975 estimates. Table 4-4 shows the derivation of such an adjustment factor. The adjustment factor, as developed in this table, was defined as the ratio of a state-based enrollment estimate to a census-based enrollment estimate for a state in secondary vocational education.

It was hoped that the adjustment factor, when applied to the 1980 state by state projection, would tend to minimize the following types of errors: (1) discrepancies in Bureau of the Census estimates of population totals for the states; (2) discrepancies in estimates of total school age population; (3) discrepancies in the estimated percent of total secondary school enrollment; and (4) discrepancies due to lack of knowledge of planned policies not yet implemented or stated. It must be recognized that the extent to which the adjustment factor minimized the above-listed errors depended largely upon the degree to which each state department was able to anticipate future trends in vocational education.

Table 4-3

Estimated Enrollment in Vocational Education for Secondary Level by State for 1975, Based on National Education Association School Statistics and State Vocational Education Goals (in Thousands)

State (1)	Percent Secondary Enrollment (9-12) is of Total Enrollment (K-12) (2)	Estimated Secondary (9-12) Enrollment (3)	State Goal as a Percent of Total Secondary (9-12) Enrollment (4)	Estimated Vocational Education Secondary Enrollment for 1975 (5)
U.S. TOTAL	38.7	17,841.3	40.2	7,173.3
Alabama	46.8	377.0	54.0	203.6
Alaska	35.9	25.3	30.0	8.0
Arizona	29.7	131.3	29.0	38.1
Arkansas	45.2	210.9	34.0	71.2
California	37.2	1,992.6	30.0	597.8
Colorado	43.3	230.7	40.0	92.3
Connecticut	35.6	247.2	33.0	81.6
Delaware	43.8	56.9	28.0	16.0
District of Columbia	37.6	64.0	50.0	32.0
Florida	44.9	733.7	55.0	403.5
Georgia	35.4	389.4	53.0	206.4
Hawaii	42.9	67.6	60.0	40.6
Idaho	48.9	79.7	43.0	34.3
Illinois	35.1	794.9	89.0	707.5
Indiana	43.9	509.9	31.0	158.1
Iowa	29.6	181.0	23.0	41.6
Kansas	40.8	203.1	18.0	36.6
Kentucky	28.4	193.5	50.0	96.8
Louisiana	38.9	309.4	35.0	108.3
Maine	27.0	62.6	39.0	24.0
Maryland	42.4	391.1	44.0	172.1
Massachusetts	43.2	499.3	22.0	110.0
Michigan	43.4	862.9	45.0	388.3
Minnesota	45.1	378.4	19.0	71.9
Mississippi	42.2	221.6	30.0	66.0
Missouri	25.9	264.9	34.0	90.1
Montana	37.7	61.3	40.0	24.5
Nebraska	41.6	132.4	35.0	46.3
Nevada	40.0	61.8	48.0	30.0
New Hampshire	40.1	64.1	26.0	16.7

Table 4-3 (cont'd)

State (1)	Percent Secondary Enrollment (9-12) is of Total Enrollment (K-12) (2)	Estimated Secondary (9-12) Enrollment (3)	State Goal as a Percent of Total Secondary (9-12) Enrollment (4)	Estimated Vocational Education Secondary Enrollment for 1975 (5)
New Jersey	34.1	546.7	48.0	262.4
New Mexico	45.3	117.3	22.0	25.8
New York	43.3	1,701.7	40.0	680.7
North Carolina	29.5	344.6	68.0	234.3
North Dakota	30.9	43.5	32.0	15.7
Ohio	37.5	870.8	20.0	174.2
Oklahoma	43.6	267.4	39.0	104.3
Oregon	40.3	198.5	45.0	89.3
Pennsylvania	46.1	1,071.7	30.0	321.5
Rhode Island	43.3	82.3	34.0	28.0
South Carolina	40.0	237.8	50.0	118.9
South Dakota	30.4	46.3	35.0	16.2
Tennessee	36.6	332.9	35.0	116.5
Texas	27.1	712.9	40.0	285.2
Utah	44.7	123.1	76.0	93.6
Vermont	36.5	35.6	31.0	11.0
Virginia	35.5	394.8	51.0	201.3
Washington	45.0	337.6	64.0	216.1
West Virginia	44.5	164.6	32.0	52.7
Wisconsin	41.2	384.9	24.0	92.4
Wyoming	46.5	37.8	50.0	19.0

Sources:

Column 2: Estimates of School Statistics, Research Report 1969-R15, National Education Association, p. 27.

Column 3: By-state estimate of secondary enrollment for 1975, Col. (2) multiplied by Col. (5), Table 4-1.

Column 4: State goal as a percent of total enrollment in vocational education in 1975, taken from annual state plans for vocational education, Part II, Section 5.0-6.0, 1969-70, 1970-71.

Column 5: Estimated secondary vocational education enrollment for 1975, Col. (3) multiplied by Col. (4).

Table 4-4

Calculation of Adjustment Factor Between the Census-Based Population Data and State-Based Data

State (1)	Projected Secondary Vocational Education Enrollment Made by State Dept. for 1975 (2)	Projected Secondary Vocational Education Enrollments for 1975 Based on Census Data (3)	Adjustment Factor (4)
U.S. TOTAL	5,837.7	7,173.3	.81
Alabama	137.8	203.6	.68
Alaska	14.2	8.0	1.78
Arizona	45.4	38.1	1.19
Arkansas	67.0	71.2	.94
California	433.6	597.8	.73
Colorado	60.0	92.3	.65
Connecticut	82.0	81.6	1.00
Delaware	9.2	16.0	.58
District of Columbia	7.0	32.0	.22
Florida	236.4	403.5	.59
Georgia	186.3	206.4	.90
Hawaii	30.0	40.6	.74
Idaho	27.0	34.3	.79
Illinois	600.0	707.5	.85
Indiana	124.0	158.1	.78
Iowa	47.2	41.6	1.13
Kansas	16.0	36.6	.44
Kentucky	101.3	96.8	1.05
Louisiana	102.3	108.3	.94
Maine	31.9	24.0	1.33
Maryland	88.0	172.1	.51
Massachusetts	125.0	110.0	1.14
Michigan	160.5	388.3	.41
Minnesota	66.8	71.9	.93
Mississippi	66.8	66.0	1.01
Missouri	108.0	90.1	1.20
Montana	19.0	24.5	.78
Nebraska	22.8	46.3	.49
Nevada	14.9	30.0	.50
New Hampshire	12.8	16.7	.77
New Jersey	246.8	262.4	.94
New Mexico	28.0	25.8	1.09
New York	572.6	680.7	.84
North Carolina	244.6	234.3	1.04
North Dakota	16.5	15.7	1.05

Table 4-4 (cont'd)

State (1)	Projected Secondary Vocational Education Enrollment Made by State Dept. for 1975 (2)	Projected Secondary Vocational Education Enrollments for 1975 Based on Census Data (3)	Adjustment Factor (4)
Ohio	167.0	174.2	.96
Oklahoma	73.8	104.3	.71
Oregon	43.7	89.3	.49
Pennsylvania	228.5	321.5	.71
Rhode Island	14.4	28.0	.51
South Carolina	88.0	118.9	.74
South Dakota	19.0	16.2	1.17
Tennessee	152.9	116.5	1.31
Texas	339.5	285.2	1.19
Utah	58.5	93.6	.63
Vermont	11.9	11.0	1.08
Virginia	159.6	201.3	.79
Washington	178.2	216.1	.82
West Virginia	41.4	52.7	.79
Wisconsin	89.6	92.4	.97
Wyoming	20.0	19.0	1.05

Sources:

Column 2: State-based projection for 1975, taken from Col. (2), Table 4-6.

Column 3: Census-based projection for 1975, taken from Col. (5), Table 4-3.

Column 4: By-state adjustment factor, Col. (2), divided by Col. (3).

ESTIMATING 1980 VOCATIONAL EDUCATION ENROLLMENTS

Table 4-5 illustrates two estimates of state by state enrollments in secondary vocational education for 1980. Column 5 of this table shows state by state enrollment estimates derived through methods similar to those described for Table 4-3. Column 6 of Table 4-5 illustrates an estimate of adjusted enrollment for each state in secondary vocational education for 1980. This estimate is a product of the Column 5 estimates and the adjustment factor derived in Column 4 of Table 4-4.

Table 4-5

Estimated Enrollment in Vocational Education at Secondary Level by State for 1980, Based on National Education Association School Statistics and State Vocational Education Goals (in Thousands)

State (1)	Percent Secondary Enrollment (9-12) Is of Total Enrollment (K-12) (2)	Estimated Secondary (9-12) Enrollment (3)	State Goal as a Percent of Total Secondary (9-12) Enrollment (4)	Estimated Vocational Education Secondary Enrollment for 1980 (5)	Adjusted Vocational Education Secondary Enrollment for 1980 (6)
U.S. TOTAL	38.7	19,809.9	39.1	7,742.7	6,277.0
Alabama	46.8	415.7	54.0	224.0	152.3
Alaska	35.9	28.7	30.0	9.0	16.0
Arizona	27.7	143.9	29.0	41.7	49.6
Arkansas	45.2	229.1	34.0	78.0	73.3
California	37.2	2,312.0	20.0	694.0	506.6
Colorado	43.3	259.5	40.0	104.0	67.6
Connecticut	35.6	276.3	33.0	91.0	91.0
Delaware	43.8	64.5	28.0	18.0	10.4
District of Columbia	37.6	72.7	89.0	64.7	14.2
Florida	44.9	859.3	55.0	473.0	279.1
Georgia	35.4	430.5	53.0	228.0	205.2
Hawaii	42.9	74.2	60.0	45.0	33.3
Idaho	48.9	88.2	43.0	38.0	30.0
Illinois	35.1	878.3	50.0	439.0	373.2
Indiana	43.9	561.3	31.0	174.0	135.7
Iowa	29.6	194.2	23.0	45.0	50.9
Kansas	40.8	218.8	18.0	39.0	17.2
Kentucky	28.4	208.4	50.0	104.0	109.2
Louisiana	38.9	347.7	35.0	122.0	114.7
Maine	27.0	67.9	39.0	26.0	34.6
Maryland	42.4	441.5	44.0	194.0	98.9
Massachusetts	43.2	546.4	22.0	120.0	136.8
Michigan	43.4	949.8	45.0	427.0	175.1
Minnesota	45.1	418.4	19.0	79.5	73.9
Mississippi	42.2	244.2	30.0	73.0	73.7

Table 4-5 (cont'd)

State (1)	Percent Secondary Enrollment (9-12) Is of Total Enrollment (K-12) (2)	Estimated Secondary (9-12) Enrollment (3)	State Goal as a Percent of Total Secondary (9-12) Enrollment (4)	Estimated Vocational Education Secondary Enrollment for 1980 (5)	Adjusted Vocational Education Secondary Enrollment for 1980 (6)
Missouri	25.9	287.9	34.0	97.9	117.5
Montana	37.7	67.4	40.0	27.0	21.1
Nebraska	41.6	141.1	35.0	49.0	24.0
Nevada	40.0	68.9	48.0	33.0	16.5
New Hampshire	40.1	71.0	26.0	18.5	14.2
New Jersey	34.1	610.8	48.0	293.0	275.4
New Mexico	45.3	136.8	22.0	30.1	32.8
New York	43.3	1,860.8	40.0	744.3	625.2
North Carolina	29.5	377.8	68.0	257.0	267.3
North Dakota	30.9	46.9	32.0	15.0	15.8
Ohio	37.5	964.2	20.0	289.3	277.7
Oklahoma	43.6	288.0	39.0	112.0	79.5
Oregon	40.3	217.6	45.0	98.0	48.0
Pennsylvania	46.1	1,149.6	30.0	345.0	245.0
Rhode Island	43.3	88.9	34.0	30.0	15.3
South Carolina	40.0	261.6	50.0	130.8	96.8
South Dakota	30.4	49.9	35.0	17.5	20.5
Tennessee	36.6	363.1	35.0	127.0	166.4
Texas	27.1	793.7	40.0	317.0	377.2
Utah	44.7	140.4	76.0	106.7	67.2
Vermont	36.5	39.0	31.0	12.0	13.0
Virginia	35.5	438.3	51.0	223.5	176.6
Washington	45.0	375.3	64.0	240.2	197.0
West Virginia	44.5	172.4	32.0	55.0	43.5
Wisconsin	41.2	424.8	24.0	102.0	98.9
Wyoming	46.5	42.2	50.0	21.0	22.1

Sources:

Column 2: Estimates of School Statistics, Research Report 1969-R15, Table 2, National Education Association.

Column 3: Col. (2) multiplied by Col. (5), Table 2.

Column 4: Taken from Annual State Plans for Vocational Education, Part II, Section 5.0, 1969-70 and 1970-71.

Column 5: Col. (3) multiplied by Col. (4).

Column 6: Col. (5) multiplied by a state adjustment factor obtained from 1975 based projection, illustrated in Col. (4) of Table 4-4.

ESTIMATING TOTAL ENROLLMENTS IN VOCATIONAL EDUCATION BY STATE AND GRADE LEVEL

Table 4-6 represents projected enrollments by grade level and state for 1975, as estimated by individual state divisions of vocational education in their long-range program plans and provisions of the 1970 state plans. Information illustrated in this table served three important purposes in this study. First, it provided an explicit estimate of total vocational education needs in the United States for 1975. Second, it provided a translation of state goals into actual enrollments for 1975. Third, it provided a means of comparing the extent of all other programs to secondary programs in vocational education for 1975. Such a comparison is provided in Table 4-7 data. This table is based on Table 4-6 data and illustrates state by state ratios of post-secondary, adult, and special needs enrollment to secondary enrollment for 1975. These ratios were calculated by dividing the respective grade level projected enrollment for the state by the projected enrollment in secondary vocational education in the 1970 annual plans and were used to estimate the 1980 enrollments by grade level and state.

Table 4-6

Enrollments in Secondary, Post-Secondary, Adult, and Special Needs Vocational Education Programs by State for 1975, as Projected by State Divisions of Vocational Education (in Thousands)

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
U.S. TOTAL	5,837.7	1,792.0	3,575.9	1,585.9	12,791.5
Alabama	137.8	23.8	42.5	23.9	228.0
Alaska*	14.2	.5	1.0	15.8	31.5
Arizona*	45.4	11.9	24.0	12.6	93.9
Arkansas	67.0	7.5	60.0	63.7	198.2
California	433.6	609.0	327.2	164.1	1,533.9
Colorado	60.0	15.2	54.4	2.7	132.3
Connecticut	82.0	9.8	32.0	25.2	149.0
Delaware*	9.2	.2	13.8	2.1	25.3
District of Columbia	7.0	1.2	3.3	10.9	22.4
Florida	236.4	151.3	190.7	91.2	669.6
Georgia	186.3	20.6	197.2	46.0	450.1
Hawaii	30.0	9.0	6.0	6.7	51.7
Idaho	27.0	4.0	9.0	1.1	41.1
Illinois	600.0	125.0	34.0	196.5	955.5
Indiana	124.0	7.3	67.0	4.1	202.4
Iowa	47.2	15.6	54.9	35.4	153.1
Kansas*	16.0	4.5	35.6	1.9	58.0
Kentucky	101.3	9.6	55.9	21.4	188.2
Louisiana	102.3	24.4	42.8	6.6	176.1
Maine	31.9	2.5	5.2	2.8	42.4

Table 4-6 (cont'd)

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
Maryland	88.0	7.0	47.0	53.0	195.0
Massachusetts	125.0	30.0	37.5	7.9	200.4
Michigan	160.5	51.6	178.2	54.7	445.0
Minnesota	66.8	26.0	106.0	4.9	203.7
Mississippi	66.8	9.2	50.0	9.6	135.6
Missouri	108.0	13.3	49.8	9.7	180.8
Montana	19.0	5.5	4.0	2.9	31.4
Nebraska	22.8	8.5	18.2	19.0	68.5
Nevada	14.9	3.1	15.7	5.2	38.9
New Hampshire*	12.8	2.0	5.6	2.0	22.4
New Jersey	246.8	9.3	187.5	30.7	474.3
New Mexico	28.0	10.0	8.0	33.3	79.3
New York	572.6	156.6	137.1	158.6	1,024.9
North Carolina	244.6	41.0	136.0	52.8	474.4
North Dakota	16.5	4.3	6.5	6.2	33.5
Ohio	167.0	27.4	414.2	69.8	678.4
Oklahoma	73.8	7.8	37.1	79.3	198.0
Oregon	43.7	23.5	43.3	10.0	120.5
Pennsylvania*	228.5	23.5	121.2	30.3	403.5
Rhode Island	14.4	2.0	9.2	5.3	30.9
South Carolina*	88.0	30.0	70.0	14.3	202.3
South Dakota	19.0	2.0	7.4	2.3	30.7
Tennessee	152.9	21.8	66.0	18.8	259.5
Texas	339.5	87.5	312.4	60.9	800.3
Utah	58.5	8.2	25.7	10.2	102.6
Vermont	11.9	1.0	5.0	5.3	23.2
Virginia	159.6	18.9	96.8	26.3	301.6
Washington	178.2	56.4	-----	40.3	274.9
West Virginia	41.4	3.0	20.7	3.8	68.9
Wisconsin	89.6	47.4	99.9	19.4	256.3
Wyoming	20.0	1.3	3.4	4.4	29.1

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*Based on projections made in 1969-70 State Plan for Vocational Education.

Sources:

Column 2-6: Annual State Plans for Vocational Education, Part II, Section 5.0-6.0, 1969-70, 1970-71.

Table 4-7

Ratio of Projected Enrollment in Post-Secondary, Adult, and Special Needs Vocational Education Programs to Projected Enrollment in Secondary Vocational Education Programs by State for 1975, Based on State Goals for 1975

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
Alabama	1.00	.17	.31	.17	1.65
Alaska	1.00	.04	.07	1.11	2.22
Arizona	1.00	.26	.53	.28	2.07
Arkansas	1.00	.11	.90	.95	2.96
California	1.00	1.40	.75	.38	3.53
Colorado	1.00	.25	.91	.05	2.21
Connecticut	1.00	.12	.39	.31	1.82
Delaware	1.00	.02	1.50	.23	2.75
District of Columbia	1.00	.17	.47	1.56	3.20
Florida	1.00	.64	.81	.39	2.84
Georgia	1.00	.11	1.06	.25	2.42
Hawaii	1.00	.30	.20	.22	1.72
Idaho	1.00	.15	.33	.04	1.52
Illinois	1.00	.21	.06	.33	1.60
Indiana	1.00	.06	.54	.03	1.63
Iowa	1.00	.33	1.16	.75	3.24
Kansas	1.00	.28	2.23	.12	3.63
Kentucky	1.00	.09	.55	.21	1.85
Louisiana	1.00	.24	.42	.06	1.72
Maine	1.00	.08	.16	.09	1.33
Maryland	1.00	.08	.53	.60	2.21
Massachusetts	1.00	.24	.30	.06	1.60
Michigan	1.00	.32	1.11	.34	2.77
Minnesota	1.00	.39	1.59	.05	3.03
Mississippi	1.00	.14	.75	.14	2.03
Missouri	1.00	.12	.46	.09	1.67
Montana	1.00	.29	.21	.15	1.65
Nebraska	1.00	.37	.80	.83	3.00
Nevada	1.00	.21	1.05	.35	2.61
New Hampshire	1.00	.16	.44	.16	1.76
New Jersey	1.00	.04	.76	.12	1.92
New Mexico	1.00	.36	.29	1.19	2.84
New York	1.00	.27	.24	.28	1.79
North Carolina	1.00	.17	.56	.22	1.95
North Dakota	1.00	.26	.39	.38	2.03

Table 4-7 (cont'd)

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
Ohio	1.00	.16	2.48	.42	4.06
Oklahoma	1.00	.11	.50	1.07	2.68
Oregon	1.00	.54	.99	.23	2.76
Pennsylvania	1.00	.10	.53	.13	1.76
Rhode Island	1.00	.14	.64	.37	2.15
South Carolina	1.00	.34	.80	.16	2.30
South Dakota	1.00	.11	.39	.12	1.62
Tennessee	1.00	.14	.43	.12	1.69
Texas	1.00	.26	.92	.18	2.36
Utah	1.00	.14	.44	.17	1.75
Vermont	1.00	.08	.42	.45	1.95
Virginia	1.00	.12	.61	.16	1.89
Washington	1.00	.32	-----	.23	1.55
West Virginia	1.00	.07	.50	.09	1.66
Wisconsin	1.00	.53	1.11	.22	2.86
Wyoming	1.00	.07	.17	.22	1.46

Sources:

Column 2-6: Calculated from Table 4-6 data, Col. (3)-(6), respectively, divided by Col. (2).

CONCLUSION

Table 4-8 shows the estimated enrollment in secondary, post-secondary, adult, and special needs vocational education programs by state for 1980. In particular, Column 6 of this table shows the total enrollments for all programs in vocational education by state for the same year.

Table 4-9 summarizes estimated total vocational education enrollment for four indicated years, including 1975 and 1980 estimates derived in this study. This table indicates that the total vocational education enrollment for all states in 1980 will be 14,162,300, which is broken down among the various grade levels as follows: secondary--6,277,000; post-secondary--1,976,500; adult--4,191,400; and special needs--1,717,400.

Table 4-8

Estimated Enrollment in Secondary, Post-Secondary, Adult, and Special Needs Vocational Education Programs by State for 1980 (in Thousands)

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
U.S. TOTAL	6,277.0	1,976.5	4,191.4	1,717.4	14,162.3
Alabama	152.3	25.9	47.2	25.9	251.3
Alaska	16.0	.6	1.1	17.8	35.5
Arizona	49.6	12.9	26.3	13.9	102.7
Arkansas	73.3	8.1	66.0	69.6	217.0
California	506.6	709.2	380.0	192.5	1,788.3
Colorado	67.6	16.9	61.5	3.4	149.4
Connecticut	91.0	10.9	35.5	28.2	165.6
Delaware	10.4	.2	15.6	2.4	28.6
District of Columbia	14.2	2.4	6.7	22.2	45.5
Florida	279.1	178.6	226.1	108.8	792.6
Georgia	205.2	22.6	217.5	51.3	496.6
Hawaii	33.3	10.0	6.7	7.3	57.3
Idaho	30.0	4.5	9.9	1.2	45.6
Illinois	373.2	78.4	22.4	123.2	597.2
Indiana	135.7	8.1	73.3	4.1	221.2
Iowa	50.9	16.8	59.0	38.2	164.9
Kansas	17.2	4.8	38.4	2.1	62.5
Kentucky	109.2	9.8	60.1	22.9	202.0
Louisiana	114.7	27.5	48.2	6.9	197.3
Maine	34.6	2.8	5.5	3.1	46.0
Maryland	98.9	7.9	52.4	59.3	218.5
Massachusetts	136.8	32.8	41.0	8.2	218.8
Michigan	175.1	56.0	194.4	59.5	485.0
Minnesota	73.9	28.8	117.5	3.7	223.9
Mississippi	73.7	10.3	55.3	10.3	149.6
Missouri	117.5	14.1	54.1	10.6	196.3
Montana	21.1	6.1	4.4	3.2	34.8
Nebraska	24.0	8.9	19.2	19.9	72.0
Nevada	16.5	3.5	17.3	5.8	43.1
New Hampshire	14.2	2.3	6.2	2.3	25.0
New Jersey	275.4	11.0	209.3	33.0	528.7
New Mexico	32.8	11.8	9.5	39.0	93.1
New York	625.2	168.8	150.0	175.1	1,119.1
North Carolina	267.3	45.4	149.7	58.8	521.2
North Dakota	15.8	4.1	6.2	6.0	32.1

Table 4-8 (cont'd)

State (1)	Secondary (2)	Post-Secondary (3)	Adult (4)	Special Needs (5)	Total-All Programs (6)
Ohio	277.7	44.4	688.7	116.6	1,127.4
Oklahoma	79.5	8.7	39.8	85.1	213.1
Oregon	48.0	25.9	47.5	11.0	132.4
Pennsylvania	245.0	24.5	129.9	31.9	431.3
Rhode Island	15.3	2.1	9.8	5.7	32.9
South Carolina	96.8	32.9	77.4	15.5	222.6
South Dakota	20.5	2.3	8.0	2.5	33.3
Tennessee	166.4	23.3	71.6	20.0	281.3
Texas	377.2	98.1	347.0	67.9	890.2
Utah	67.2	9.4	29.6	11.4	117.6
Vermont	13.0	1.0	5.5	5.9	25.4
Virginia	176.6	21.2	107.7	28.3	333.8
Washington	197.0	63.0	-----	45.3	305.3
West Virginia	43.5	3.0	21.8	3.9	72.2
Wisconsin	98.9	52.4	109.8	21.8	282.9
Wyoming	22.1	1.5	3.8	4.9	32.3

Sources:

Column 2: Calculated in Col. (6), Table 4-5.

Columns 3 - 6: By-state estimates for post-secondary, adult, and special needs programs, Col. (2) multiplied by a respective state grade level goal factor. These goal factors are illustrated in Col. (2) - (6) of Table 4-7.

Table 4-9

Vocational Education Enrollment Totals for All States by Level for Indicated Years (in Thousands)

Grade Level (1)	FY 1966 (2)	FY 1969 (3)	FY 1975 (4)	FY 1980 (5)
TOTAL	6,070.0	7,979.4	12,791.5	14,162.3
Secondary	3,048.2	4,079.4	5,837.7	6,277.0
Post-Secondary	442.1	706.1	1,792.0	1,976.5
Adult	2,530.7	3,050.5	3,575.9	4,191.4
Special Needs	49.0	143.4	1,585.9	1,717.4

Sources:

Columns 2 and 3: "Summary Data, Vocational Education," (for fiscal years 1966 and 1969), U.S. Department of Health, Education, and Welfare.

Column 4: Taken from annual state plans for vocational education, 1970-71, Part II, Section 5.0-6.0 (see table 4-6).

Column 5: U.S. totals as illustrated in Table 4-8.

An analysis of state goals in vocational education for 1975 indicated some change in overall emphasis of program offerings at various grade levels. Table 4-10 indicates that roughly 51 percent of the total vocational education programs was offered during FY 1969 at the secondary level. From the same table, it is readily observed that this figure will be reduced by approximately 5 for 1975 and 1980 to a level of 45 percent. In FY 1969, special needs programs amounted to nearly 2 percent of the total vocational education program. In 1975, states anticipate this figure to increase to more than 12 percent of the total vocational education programs. Similarly, states anticipate an increase in post-secondary and a decrease in adult programs, as compared with total vocational education offerings for FY 1969.

Table 4-10

Percent Enrollment Totals for All States by Level
for Indicated Years

Grade Level (1)	FY 1966 (2)	FY 1969 (3)	FY 1975 (4)	FY 1980 (5)
TOTAL	100.0	100.0	100.0	100.0
Secondary	50.2	51.2	45.6	44.3
Post-Secondary	7.3	8.8	14.0	14.0
Adult	41.7	38.2	28.0	29.6
Special Needs	0.8	1.8	12.4	12.1

Source:

Percentages calculated from Table 4-9.

It must be recognized, however, that actual enrollments in secondary and adult level programs will not decrease. Undoubtedly, the enrollments in both these areas will continue to increase at a steady rate. Since the rate of increase of post-secondary and special needs programs is more rapid than that in secondary and adult programs, the latter appear to decrease relatively. The anticipated rapid rate of increase in special needs programs can be attributed to the mandated provisions of the Vocational Education Amendments of 1968. Under the provisions of this Act, states are required to spend at least 25 percent of Part B Federal funds for disadvantaged and handicapped students. Similarly, the relative decrease in the rate of growth in adult programs is due to the transfer of the adult count to the area of post-secondary education. As the post-secondary programs are expanded, they will tend to absorb more and more of the adult enrollment.

It is difficult to ascertain the extent to which state goals for vocational education for 1975 are realistic. Out of a total U.S. secondary fall enrollment of 17,579,131 for 1969, the number of secondary students enrolled in vocational education was 4,079,395, or approximately 23 percent. Table 4-5 indicates that the average state anticipates that more than 39 percent of total secondary enrollments will participate in some secondary vocational education program. This indicates almost a doubling of enrollment in vocational education in a period of six years.

The capacity of states to extend the scope of vocational education can be implied from past average yearly rate increases in vocational education. Table 4-11 provides such information by illustrating the average percent increase per year in total vocational education enrollments for all states by grade level for 1966-69, 1969-75, and 1975-80. The figures for 1969-75 are based on state anticipated increases, while those for 1975-80 represent estimates based on projections made in this study. If it is considered that the average annual rate of increase in total vocational education enrollments between 1966-69 was 6.0 percent, then an anticipated annual increase of 5.4 percent for 1970-75 is quite realistic, especially when viewed in the light of the Vocational Education Amendments of 1968. In the same manner, the predicted 1.6 percent annual rate of increase for 1975-80 made in this study was rather conservative and accounted for increases in population alone.

Table 4-11

Average Percent Increase per Year in Total Vocational Education Enrollments for All States by Grade Levels for Periods Indicated

Grade Level (1)	Average Percent Increase per Year for FY Period 1966-69 (2)	1969-75 (3)	1975-80 (4)
TOTAL	6.0	5.4	1.6
Secondary	6.3	4.3	1.2
Post-Secondary	9.3	8.7	1.6
Adult	4.3	2.1	2.5
Special Needs	16.5	13.0	1.3

Source:

Calculations based on Table 4-9 data.

A lower annual rate of increase in vocational education resulted for 1975-80 in this study because 1975 state objectives were applied to 1980 secondary enrollment data. This result produced a leveling off of enrollments after 1975. Therefore, the projections illustrated in this study represent a minimal enrollment estimate in vocational education for 1980.

CHAPTER V

PROJECTIONS OF VOCATIONAL EDUCATION COSTS FOR 1980

One of the purposes of this study was to project the cost of vocational education in 1980. Since most vocational education is offered within public high schools and junior colleges, vocational education costs are included as part of total costs reported for these schools and colleges. Moreover, students enrolled in vocational education programs in these schools and colleges usually take general education courses along with their vocational courses.

Thus, the cost of vocational education is usually combined with the cost of general education, making it difficult to segregate amounts spent for each type of education. This problem was discussed in Chapter III.

Moreover, states generally have developed methods for financing public high schools and junior colleges. Such financial support is, of course, available to finance vocational education. However, it is usually insufficient because most vocational education courses cost more per student than other courses.

For this reason, there is interest in the additional costs incurred by high schools and colleges which maintain vocational education programs. The additional cost incurred is often called the "excess cost" of vocational education.

Unfortunately, this term has several definitions. The "excess cost" of vocational education must be in excess of something. Assuming the total cost per student of vocational education has been ascertained, it could be in excess of:

1. The state average annual cost per student for all students in all of the high schools, including students enrolled in both vocational and other courses.
2. The state average annual cost per student, excluding students enrolled in vocational education courses.
3. The local school district's average annual cost per student including students enrolled in both general education and vocational education programs.
4. The local school district's average annual cost per student excluding students enrolled in vocational education programs.
5. The amount per student included in state foundation programs or provided by other state grants-in-aid.

Because the excess cost of vocational education is the basic reason for continuing categorical aid for vocational education, in this study the excess cost is projected to 1980. The projection is based upon the first of the five definitions of excess cost in order to utilize available data.

The following data were available:

40

1. The average annual current expenditures per pupil in public schools, grades K-12, in each state.

2. The number of high school students and the number of high school teachers in public schools of each state.

3. The numbers and percent of students currently enrolled in vocational education programs and projected enrollments by states, reported in Chapter IV.

4. Estimates of the percent of full time that students enrolled in vocational programs spend in vocational courses as distinguished from other (general education) courses. This estimate was based upon information obtained during visits to 15 states.

5. Estimates of the percent by which the cost per student in typical vocational education courses exceed the cost per student in all other courses excluding vocational education. These estimates were based upon a number of studies reported in the literature for both high schools and junior colleges.

The National Education Association's Research Division publishes current expenditures per pupil, in grades K-12, by state each year. But neither NEA nor the U.S. Office of Education publishes the annual cost per secondary student. To obtain the annual cost per secondary student, which was used as a base for estimating the annual cost of vocational education, the cost per student, as reported by NEA, was multiplied by an adjustment factor (A), defined as follows:

$$A = \frac{(\text{K-12 Enrollment})\ R}{(\text{Elementary Enrollment}) + (\text{High school Enrollment})\ R}$$

The adjustment factor A represents the ratio of the average cost per high school student to the average cost per student for all grades, K through 12. The above formula for A was derived by assuming that the ratio of the cost per student in secondary schools (9-12) to the cost per pupil in elementary schools (K-8) is equal to the ratio of the cost per student for teachers' salaries in secondary schools to the corresponding cost per pupil for elementary schools. This ratio is represented by R in the formula for the adjustment factor A.

Using NEA estimates for enrollments, expenditures, and salaries paid teachers, a value of 1.2 was obtained for A for 1969.

The 1969 current expenditure per student in average daily membership for grades K-12 was $717, producing an estimate of $860 for the national average annual cost per secondary student in 1969-70 (see Table 5-1 for state figures). For public junior colleges the annual cost per student was estimated to be 1.2 times the annual cost per high school student.

Information regarding the excess cost of vocational education courses was limited. Several studies reported the ratio of the average annual current cost per student in vocational education courses to the average cost per student in all other courses. Obviously, the average cost for all other courses was not the same as the average for all courses, as the latter included vocational courses. As the current cost per secondary school student for all courses, including vocational education courses, is used as the base for projecting future costs of vocational education, the excess cost ratios, as reported in these studies, had to be adjusted before they could be used to project the excess cost of vocational education courses.

To make this adjustment, the following variables were defined:

P_1 = Percent of students enrolled in organized vocational programs. A student enrolled in a vocational program is counted as one enrollee even if most of his instruction is in general education.

P_2 = Percent of school time the average vocational student spends in vocational education courses.

P_3 = Percent by which the average annual current cost per student of vocational courses exceeds the corresponding average cost of all other courses.

P_4 = Percent by which the average annual current cost for vocational students, based upon all their courses, exceeds the corresponding average for all students.

To project vocational education costs when the base cost was the average annual current expenditures for all students and when the number of vocational students was defined as for P_1 above, the appropriate percent to use was P_4. Estimates for P_1 and P_2 were available for secondary schools for each state and could be estimated for post-secondary schools on a national basis. P_3 was ascertained for secondary and post-secondary schools from various studies. P_4 was obtained, using the following formula:

$$P_4 = \frac{P_2P_3 - P_1P_2P_3}{1 + P_1P_2P_3}$$

To derive this P_4 formula, the following additional variables were defined:

C_v = Average annual current cost per student in vocational courses.

C_g = Average annual current cost per student for all other courses.

The average annual current cost of education for vocational students based upon all of their courses is:

$$\text{(I)} \quad P_2C_v + (1 - P_2)\, C_g$$

For all students, including those enrolled in vocational education, the average annual current cost is:

$$\text{(II)} \quad P_1P_2C_v + (1 - P_1P_2)\, Cg$$

$P4 + 1$ equals the quotient obtained by dividing (I) by (II)

$$P_4 + 1 = \frac{P_2C_v + (1 - P_2)\, C_g}{P_1P_2C_v + (1 - P_1P_2)\, C_g}$$

Table 5-1

Estimated Annual Current Expenditures per Secondary School Student, 1969-70

State (1)	Adjustment Factor (2)	Per Pupil Expenditure in Average Daily Membership (K-12) (3)	Estimated Base Cost per Secondary Student (4)
U.S. TOTAL	1.2	$ 717	$ 860
Alabama	1.1	419	461
Alaska	1.1	1,017	1,119
Arizona	1.1	674	741
Arkansas	1.1	507	558
California	1.1	735	809
Colorado	1.1	653	718
Connecticut	1.2	820	984
Delaware	1.2	745	894
District of Columbia	1.3	958	1,245
Florida	1.1	665	732
Georgia	1.1	557	613
Hawaii	.9	788	709
Idaho	1.1	553[b]	608
Illinois	1.2	789	947
Indiana	1.1	630	693
Iowa	1.5[a]	847	1,271
Kansas	1.2	672[b]	806
Kentucky	1.4	576	806
Louisiana	1.2	575	690
Maine	1.3	647	841
Maryland	1.2	810	972
Massachusetts	1.1	705	776
Michigan	1.3	793[b]	1,031
Minnesota	1.1	740	814
Mississippi	1.2	449	539
Missouri	1.2	665[b]	798
Montana	1.1	740	814
Nebraska	1.2	511	613
Nevada	1.2	711	853
New Hampshire	1.2	652	782
New Jersey	1.2	897	1,076
New Mexico	1.0	642	642
New York	1.2	1,134	1,361
North Carolina	1.1	575	633
North Dakota	1.3	598	777

Table 5-1 (cont'd)

State (1)	Adjustment Factor (2)	Per Pupil Expenditure in average Daily Membership (K-12) (3)	Estimated Base Cost per Secondary Student (4)
Ohio	1.2	$637	$764
Oklahoma	1.1	517	569
Oregon	1.1	831	914
Pennsylvania	1.1	825	908
Rhode Island	1.2	838	1,006
South Carolina	1.2	522	626
South Dakota	1.3	613	797
Tennessee	1.2	522	626
Texas	1.5[a]	503	755
Utah	1.1	576	634
Vermont	1.3	768	998
Virginia	1.2	653	784
Washington	1.1	694[b]	763
West Virginia	1.1	595	655
Wisconsin	1.2	833	1,000
Wyoming	1.1	773	850

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a. The maximum value for "A" used in this study was 1.5.

b. 1969 total current expenditures per ADM was not available for all states in the NEA Research's Division's Estimate of School Statistics, 1969-70 (Washington: N.E.A., 1969) p. 37. Therefore $49, the national average difference between costs per student in ADA and costs per ADM, was subtracted from certain 1969 state expenditures for ADA, so as to estimate the state's unavailable cost per ADM.

Sources:

Column 2: The adjustment factor was computed as described in the text under the formula for "A." Enrollment figures were obtained from the National Education's Research Division's Estimates of School Statistics, 1969-70 (Washington, NEA, 1969), p. 27. Average teacher salary cost per pupil was derived from pp. 31 and 33 of the quoted publication and are shown in Tables 5-2 and 5-3 of this report.

Column 3: NEA, Op. Cit., p. 37, Column 4.

Column 4: Column 2 multiplied by Column 3.

$$P_4 + 1 = \frac{P_2\, C_v/C_g + 1 - P_2}{P_1P_2\, C_v/C_g + 1 - P_1P_2}$$

But P_3 is defined as:

$$P_3 = \frac{C_v - C_g}{C_g} = \frac{C_v}{C_g} - 1 \text{ or } P_3 + 1 = \frac{C_v}{C_g}$$

Substituting this expression for C_v/C_g, the formula for $P_4 + 1$ becomes:

$$P_4 + 1 = \frac{P_2(P_3 + 1) + (1 - P_2)}{P_1P_2\,(P_3 + 1) + (1 - P_1P_2)}$$

Simplifying the right side of the equation, transposing the 1 and placing it over a common denominator:

$$P_4 = \frac{P_2P_3 + 1}{P_1P_2P_3 + 1} - \frac{P_1P_2P_3 + 1}{P_1P_2P_3 + 1}$$

or

$$P_4 = \frac{P_2P_3 - P_1P_2P_3}{1 + P_1P_2P_3}$$

Vocational education costs varied depending on the types of courses offered, teachers' salaries, and pupil-teacher ratios. Consequently, a low-and-high estimate of vocational cost factors (P_3) was used and a high-and-low (P_4) for vocational education was obtained (see Table 5-4). These P_4's were multiplied by the average annual cost per secondary student to obtain excess cost estimates for vocational students in secondary schools.

To obtain a cost per student for junior colleges for each state, the cost per secondary school student was multiplied by 1.2, the ratio of the cost per junior college student to the cost per secondary student. By means of this procedure, the estimated national base cost per junior college student ($1,032) was obtained (see Table 5-7). This figure was then multiplied by a junior college P_4 to obtain the estimated excess cost per year per public junior college vocational student.

Annual excess costs per vocational student were multiplied by estimated enrollments in 1980 to obtain national and state, high and low estimates of excess costs for public vocational education for secondary, junior college, adult, and special needs in 1980, using the 1969 price levels.

Excess costs for adult and special needs were obtained by using secondary school data, but assuming that adults were one-fifth of a full-time equivalent secondary student, and that special needs students were one-half of a full-time equivalent secondary student.

SECONDARY EXCESS COSTS

To obtain the estimated base cost per secondary school students, an adjustment factor A was calculated for the nation and for each state using the formula described in the last section:

$$A = \frac{(\text{K-12 enrollment})\ R}{(\text{K-8 enrollment}) + (\text{9-12 enrollment})\ R}$$

To obtain R, the secondary per pupil average annual teacher's salary was divided by the elementary per pupil average annual salary. The per pupil salary costs were obtained by dividing the number of students by the number of teachers. This ratio was then divided by the average salary per teacher.[1]

Nationally, elementary schools had 27,901,900 students and 1,106,500 teachers (see Table 5-2). The pupil-teacher ratio was 25.2. The average teacher's salary was $8,310, so the cost per elementary pupil was $330 per year. On the secondary school level, the number of students was 17,579,100 and the number of teachers was 892,400 (see Table 5-3). This resulted in a pupil-teacher ratio of 19.7. This ratio was 5.5 students per teacher less than in elementary school. In addition, the secondary teacher's average salary was $8,831 or $521 higher than the average annual elementary school teacher's salary. Both differences resulted in a secondary per pupil cost of $118 higher than the equivalent elementary teacher per pupil cost. Teachers' salaries were assumed to be representative of school costs as they are the major component of school expenditures. Therefore, a national R of 1.4 was obtained. R ranged from .9 in Hawaii to 2.4 in Texas. Using the formula for A, a national average "A" of 1.2 was obtained (see Table 5-4).

For grades K-12 in public schools, the per pupil expenditure in average daily membership (ADM) was $717[2] in 1969-70 (see Table 5-1). This per pupil expenditure was multiplied by the secondary school adjustment factor to obtain a national estimated base cost per secondary school student of $860. Corresponding costs per student were computed for each state, varying from $461 in Alabama to $1,361 in New York (see Table 5-5). Each of these figures was then multiplied by the corresponding value for P_4 (see Table 5-4).

In order to make use of the P_4 formula, it was necessary to obtain numerical values for P_1, P_2, and P_3, as previously defined.

The values for P_1 were obtained from State Plans for Vocational Education filed with the U.S. Office of Education, representing state estimates of the percent of secondary school students who will be enrolled in vocational education programs in 1971.

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[1] National and state figures for ADM, teachers' salaries, and the number of teachers and students were obtained from the National Education Association's Research Division's Estimates of School Statistics, 1969-70 (Washington: NEA, 1969), pp. 27, 31, 33.

[2] NEA, op. cit., p. 37.

Table 5-2

Elementary School Data, 1969-70 School Year

State (1)	Fall Enrollment (in Hundreds) (2)	Number of Teachers (in Hundreds) (3)	Pupil-Teacher Ratio (4)	Av. Annual Salary (5)	Salary per Pupil (6)
U.S. TOTAL	279,019	11,065	25.2	$8,310	$330
Alabama	4,389	168	26.1	6,745	258
Alaska	504	22	22.9	10,598	463
Arizona	2,936	129	22.8	8,435	370
Arkansas	2,524	102	24.7	6,193	251
California	29,250	1,150	25.4	9,775	393
Colorado	3,050	124	24.6	7,400	301
Connecticut	4,160	177	23.5	8,900	379
Delaware	738	29	25.4	8,663	341
District of Columbia	933	42	22.2	8,308[a]	374
Florida	7,756	329	23.6	8,180	347
Georgia	7,184	281	25.6	7,134	279
Hawaii	1,016	44	23.1	9,420	408
Idaho	923	38	24.3	6,480	267
Illinois	14,750	612	24.1	9,250	384
Indiana	6,840	256	26.7	8,891	333
Iowa	4,643	178	26.1	8,079	310
Kansas	3,097	123	25.2	7,485	297
Kentucky	5,041	180	28.0	7,220	258
Louisiana	5,221	223	23.4	6,810	291
Maine	1,750	73	24.0	7,380	308
Maryland	5,130	213	24.1	9,235	383
Massachusetts	6,350	261	24.3	8,600	354
Michigan	12,260	417	29.4	9,572	326
Minnesota	5,025	210	23.9	8,450	354
Mississippi	3,415	124	27.5	5,747	209
Missouri	7,610	297	25.6	7,745	303
Montana	1,091	54	20.2	7,300	361
Nebraska	1,920	90	21.3	7,074	332
Nevada	747	27	27.7	9,213	333
New Hampshire	913	37	24.7	7,617	308
New Jersey	9,590	397	24.2	8,950	370
New Mexico	1,520	64	23.8	7,840	329
New York	19,906	884	22.5	9,400	418
North Carolina	8,399	332	25.3	7,284	288
North Dakota	1,042	45	23.2	6,300	272

Table 5-2 (cont'd)

State (1)	Fall Enrollment (in Hundreds) (2)	Number of Teachers (in Hundreds) (3)	Pupil-Teacher Ratio (4)	Av. Annual Salary (5)	Salary per Pupil (6)
Ohio	15,146	535	28.3	$7,680	$271
Oklahoma	3,456	141	24.5	6,884	281
Oregon	2,830	123	23.0	8,500	370
Pennsylvania	12,478	520	24.0	8,600	358
Rhode Island	1,025	43	23.8	8,778	369
South Carolina	3,888	149	26.1	6,550	251
South Dakota	1,170	59	19.8	5,670	286
Tennessee	5,657	207	27.3	6,935	254
Texas	19,500	626	31.2	7,215	231
Utah	1,669	59	28.3	7,580	268
Vermont	660	31	21.3	7,680	361
Virginia	6,947	300	23.2	7,700	332
Washington	4,511	179	25.2	8,700	345
West Virginia	2,227	86	25.9	7,490	289
Wisconsin	5,761	254	22.7	8,750	385
Wyoming	467	23	20.3	8,108	399

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a. The average annual salary for teachers in the District of Columbia was not included in the NEA publication. The amount shown was estimated.

Sources:

Column 2: National Education Association's Research Division, *Estimates of School Statistics, 1969-70* (Washington: National Education Association, 1969, p. 27.

Column 3: *Ibid.*, p. 31.
Column 4: Column 2 divided by column 3.
Column 5: *Op. Cit.*, p. 33.
Column 6: Column 5 divided by column 4.

Table 5-3

Secondary School Data, 1969-70 School Year

State (1)	Fall Enrollment (in Hundreds) (2)	Number of Teachers (in Hundreds) (3)	Pupil-Teacher Ratio (4)	Av. Annual Salary (5)	Salary per Pupil (6)
U.S. TOTAL	175,791	8,924	19.7	$8,831	$448
Alabama	3,861	175	22.1	6,887	312
Alaska	276	14	19.7	10,499	533
Arizona	1,245	53	23.5	9,390	400
Arkansas	2,077	94	22.1	6,476	293
California	17,350	750	23.1	10,825	469
Colorado	2,332	110	21.2	7,800	368
Connecticut	2,300	130	17.7	9,320	527
Delaware	567	29	19.6	9,137	466
District of Columbia	558	36	15.5	9,269[a]	598
Florida	6,324	292	21.7	8,440	389
Georgia	3,940	184	21.4	7,216	337
Hawaii	756	29	26.1	9,500	364
Idaho	876	42	20.9	7,240	346
Illinois	7,990	427	18.7	10,200	545
Indiana	5,362	250	21.4	9,402	439
Iowa	1,951	152	12.8	8,987	702
Kansas	2,143	118	18.2	7,745	426
Kentucky	1,996	109	18.3	7,880	431
Louisiana	3,316	177	18.7	7,220	386
Maine	647	37	17.5	7,950	454
Maryland	3,771	193	19.5	9,547	490
Massachusetts	4,820	226	21.3	8,800	413
Michigan	9,398	517	18.2	10,024	551
Minnesota	4,140	213	19.4	8,900	459
Mississippi	2,341	103	22.7	6,020	265
Missouri	2,660	132	20.2	7,917	392
Montana	656	31	21.2	8,150	384
Nebraska	1,370	74	18.5	8,052	435
Nevada	497	24	20.7	9,472	458
New Hampshire	609	30	20.3	7,837	386
New Jersey	4,960	273	18.2	9,330	513
New Mexico	1,260	54	23.3	7,820	336
New York	15,203	846	18.0	10,000	556
North Carolina	3,513	156	22.5	7,842	349
North Dakota	475	25	19.0	7,580	399

Table 5-3 (cont'd)

State (1)	Fall Enrollment (in Hundreds) (2)	Number of Teachers (in Hundreds) (3)	Pupil-Teacher Ratio (4)	Av. Annual Salary (5)	Salary per Pupil (6)
Ohio	9,087	429	21.2	$8,100	$382
Oklahoma	2,668	125	21.3	7,105	334
Oregon	1,910	95	20.1	9,100	453
Pennsylvania	10,697	530	20.2	8,800	436
Rhode Island	776	42	18.5	8,838	478
South Carolina	2,594	124	20.9	7,000	335
South Dakota	510	30	17.0	7,060	415
Tennessee	3,257	136	23.9	7,600	318
Texas	7,280	552	13.2	7,335	556
Utah	1,355	54	25.1	7,650	305
Vermont	382	25	15.3	8,320	544
Virginia	3,819	209	18.3	8,400	459
Washington	3,694	153	24.1	9,420	391
West Virginia	1,789	78	22.9	7,730	338
Wisconsin	4,040	216	18.7	9,200	492
Wyoming	397	22	18.0	8,380	466

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a. The average annual salary for teachers in the District of Columbia was not included in the cited NEA publication. The amount shown was estimated.

Sources:

Column 2: National Education Association's Research Division, Estimates of School Statistics, 1969-70 (Washington: National Education Association, 1969), p. 27.

Column 3: Ibid., p. 31.
Column 4: Column 2 divided by column 3.
Column 5: NEA, Op. Cit., p. 33.
Column 6: Column 5 divided by column 4.

The estimated value for P_2 was based upon information obtained from fifteen states, indicating that secondary students enrolled in vocational programs spent about 1/3 of their school time in vocational courses and 2/3 in general education courses.[3]

The value of P_3 was obtained from studies by Corazinni,[4] Weisgerber,[5] and Burke.[6] These studies revealed a range for P_3 from approximately 1.6 to 1.9, providing the "high" and "low" estimates for this study.

Using the formula for P_4, national high and low estimates of .13 and .20 were obtained. On the basis of the low estimate, P_4 ranged from .08 for Georgia and Illinois to .18 for the District of Columbia. The high estimate of P_4 ranged from .11 for Illinois to .25 for Alaska, the District of Columbia, and Iowa.

P_4 was multiplied by the estimated average cost per secondary school student to give an estimated national low and high excess cost per secondary vocational student of $112 and $172. The national average low and high cost estimates per secondary vocational student were $972 and $1,032. State excess cost and total excess cost figures were obtained in the same way (see Table 5-5).

These estimates of excess cost per secondary vocational education student, in 1969 dollars, were multiplied by the estimated 1980 enrollment to obtain national and state low and high estimates of the total excess cost of secondary vocational students in 1980. Nationally, the low estimate was $703,024,000 and the high was $1,079,644,000 (see Table 5-6).

On the basis of the high estimates, Iowa is expected to have the highest excess cost per secondary school vocational student, and Georgia the lowest. Multiplication of the high estimates of excess cost per student by estimated enrollments reveals that New York will have the highest total projected excess cost in 1980. The ten states with the highest total projected excess costs for 1980 are, in order: New York, California, New Jersey, Pennsylvania, Texas, Ohio, Illinois, Michigan, Florida, and Massachusetts. States with total projected excess costs of less than $3 million are: Delaware, Nevada, New Hampshire, North Dakota, and Vermont.

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[3] State data were gathered from Colorado, Illinois, Michigan, Minnesota, New Hampshire, Ohio, Oregon, Tennessee, Texas, Utah and Washington.

[4] A. J. Corazinni, Vocational Education, A Study of Benefits and Costs, (Princeton: Princeton University, 1966).

[5] W. Weisgerber, "Operational Cost Estimates for Michigan Secondary Vocational Programs," (Lansing: State Department of Education, Division of Vocational Education).

[6] Arvid J. Burke, "Preliminary Cost Data Tables," Need and Cost Differentials for Programs of Compensatory Education (Albany: State University of New York at Albany, 1970).

Table 5-4

Values of Adjustment Factor and P_4 for the Nation and Each State

(1)	Adjustment Factor (2)	P_1 (3)	P_4 Low (4)	P_4 High (5)
U.S. AVERAGE	1.2	.28	.13	.20
Alabama	1.1	.34	.12	.18
Alaska	1.1	.14	.17	.25
Arizona	1.1	.32	.13	.18
Arkansas	1.1	.24	.14	.21
California	1.1	.24	.14	.21
Colorado	1.1	.24	.14	.21
Connecticut	1.2	.25	.14	.21
Delaware	1.2	.20	.15	.23
District of Columbia	1.3	.12	.18	.25
Florida	1.1	.42	.11	.16
Georgia	1.1	.54	.08	.12
Hawaii	.9	.30	.13	.19
Idaho	1.1	.36	.12	.17
Illinois	1.2	.56	.08	.11
Indiana	1.1	.22	.15	.21
Iowa	1.7	.13	.17	.25
Kansas	1.2	.16	.17	.24
Kentucky	1.4	.41	.11	.16
Louisiana	1.2	.35	.12	.17
Maine	1.3	.36	.12	.17
Maryland	1.2	.33	.12	.18
Massachusetts	1.1	.15	.17	.24
Michigan	1.3	.29	.13	.19
Minnesota	1.1	.16	.17	.24
Mississippi	1.2	.21	.15	.23
Missouri	1.2	.33	.12	.18
Montana	1.1	.21	.15	.23
Nebraska	1.2	.24	.14	.21
Nevada	1.2	.24	.14	.20
New Hampshire	1.2	.21	.15	.23
New Jersey	1.2	.30	.13	.19
New Mexico	1.0	.19	.15	.23
New York	1.2	.31	.13	.19
North Carolina	1.1	.49	.09	.13
North Dakota	1.3	.32	.13	.19
Ohio	1.2	.25	.14	.20
Oklahoma	1.1	.34	.12	.18
Oregon	1.1	.20	.15	.23
Pennsylvania	1.1	.18	.15	.24
Rhode Island	1.2	.17	.17	.24

Table 5-4 (cont'd)

(1)	Adjustment (2)	P_1 (3)	P_4 Low (4)	P_4 High (5)
South Carolina	1.2	.37	.12	.17
South Dakota	1.3	.25	.14	.21
Tennessee	1.2	.18	.15	.24
Texas	1.7	.34	.12	.18
Utah	1.1	.50	.09	.13
Vermont	1.3	.28	.13	.20
Virginia	1.2	.44	.10	.15
Washington	1.1	.44	.10	.15
West Virginia	1.1	.18	.15	.24
Wisconsin	1.2	.18	.15	.24
Wyoming	1.1	.29	.13	.19

Sources:

Column 2: From Table 5-1, Column 2.
Column 3: Obtained from 1969-70 and 1970-71 State Plans.
Columns 4 and 5: Computed by formula as explained in the text.

Table 5-5

Estimated Excess Cost per Vocational Student in Public Secondary Schools for 1980 (in 1969 Dollars)

State (1)	Estimated Base Cost per Secondary Student (2)	Estimated Cost per Vocational Education Student Low (3)	 High (4)	Estimated Excess Cost per Secondary Vocational Student Low (5)	 High (6)
U.S. AVERAGE	$ 860	$ 972	$1,032	$112	$172
Alabama	461	516	544	55	83
Alaska	1,119	1,309	1,399	190	280
Arizona	741	837	874	96	133
Arkansas	558	636	675	78	117
California	809	922	979	113	170
Colorado	718	819	869	101	151
Connecticut	984	1,122	1,191	138	207
Delaware	894	1,028	1,100	134	206
District of Columbia	1,245	1,469	1,556	224	311
Florida	732	813	849	81	117
Georgia	613	662	687	49	74
Hawaii	709	801	844	92	135
Idaho	608	681	711	73	103
Illinois	947	1,023	1,051	76	104
Indiana	693	797	839	104	146

Table 5-5 (cont'd)

State (1)	Estimated Base Cost per Secondary Student (2)	Estimated Cost per Vocational Education Student		Estimated Excess Cost per Secondary Vocational Student	
		Low (3)	High (4)	Low (5)	High (6)
Iowa	$1,271	$1,487	$1,589	$216	$318
Kansas	806	943	999	137	193
Kentucky	806	895	935	89	129
Louisiana	690	773	807	83	117
Maine	841	942	984	101	143
Maryland	972	1,089	1,147	117	175
Massachusetts	776	908	962	132	186
Michigan	1,031	1,165	1,227	134	196
Minnesota	814	952	1,009	138	195
Mississippi	539	620	663	81	124
Missouri	798	894	942	96	144
Montana	814	936	1,001	122	187
Nebraska	613	699	742	86	129
Nevada	853	972	1,024	119	171
New Hampshire	782	899	962	117	180
New Jersey	1,076	1,216	1,280	140	204
New Mexico	642	738	790	96	148
New York	1,361	1,538	1,620	177	259
North Carolina	633	690	715	57	82
North Dakota	777	878	925	101	148
Ohio	764	871	917	107	153
Oklahoma	569	637	671	68	102
Oregon	914	1,051	1,124	137	210
Pennsylvania	908	1,044	1,126	136	218
Rhode Island	1,006	1,177	1,247	171	241
South Carolina	626	701	732	75	106
South Dakota	797	909	964	112	167
Tennessee	626	720	776	94	150
Texas	755	846	891	91	136
Utah	634	691	716	57	82
Vermont	998	1,128	1,198	130	200
Virginia	784	862	902	78	118
Washington	763	839	877	76	114
West Virginia	655	753	812	98	157
Wisconsin	1,000	1,150	1,240	150	240
Wyoming	850	961	1,012	111	162

Sources:

Column 2: Table 5-1, column 4.
Column 3: Column 2 x (1 + P_4).
Column 4: Column 2 x (1 + P_4).
Column 5: Column 2 x P_4.
Column 6: Column 2 x P_4.

JUNIOR COLLEGE EXCESS COSTS

To obtain an estimated annual base cost per junior college student, the costs per student in several studies were compared with costs per secondary student during the same school year.[7] The average cost ratio of junior colleges to secondary schools, per student, was 1.2. Thus, the estimated base cost per junior college student was $1,032 ($860 x 1.2), with a high of $1,633 in New York and a low of $553 in Alabama (see Table 5-7).

To obtain a P4 value for junior college costs it was necessary to obtain values for P_1, P_2, and P_3 for junior colleges. Statistics from eleven states[8] revealed that the average public junior college student spent 67 percent of his time in approved vocational education courses. Forty-seven percent of the students in public junior colleges were enrolled in organized vocational programs.[9] These figures were rounded to two-thirds (2/3) and 50 percent respectively. Studies showed a range for P_3 of from .36 to .85. These were rounded to .40 and .90.

The national P_4 estimates of excess costs were .12 and .23. The low national excess cost per junior college vocational student was $124 ($1,032 x .12) and the high estimate was $237 ($1,032 x .23). The low and high excess cost estimates per junior college vocational student were multiplied by the estimated 1980 enrollment to obtain the total excess cost estimates for vocational students at the junior college level in 1980 at 1969 prices (see Table 5-8). Nationally, the low estimate was $245,086,000 and the high estimate was $468,431,000.

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7. The following junior college studies were used: (a) Marvin C. Alkin, Financing Junior Colleges in California: A Critical Analysis of the State Support Program (Sacramento: Junior College Advisory Panel, California State Board of Education, 1966), p. 62; (b) Ernest F. Anderson and James S. Spencer, Report of Selected Data and Characteristics, Illinois Public Junior Colleges, 1966-67 (Springfield; Illinois Junior College Board, 1967), Tables 19, 40, 51, 65, 76; (c) Ernest F. Anderson, Differential Costs of Curricula in Comprehensive Junior Colleges, (Unpublished Doctor's dissertation, University of Illinois, 1966) Table 6; (d) Bob N. Cage, Cost Analysis of Selected Education Programs in Iowa (Des Moines: Iowa State Department of Public Instruction, 1968); (e) Albert H. Martin and Carl E. Thornblad, Report of Selected Data and Characteristics of Illinois Public Junior Colleges, 1969-1970 (Springfield: Illinois Junior College Board, 1970), Table 49; (f) Marshall W. McLeod, "Cost Survey," (Little Rock: Commission on Coordination of Higher Education Finance, 1970); (g) Eldridge E. Scales, Current Operating Costs of 2-Year Colleges in the South (Atlanta: Southern Association of Colleges and Schools, 1969). Cost figures derived from the above studies were compared with cost figures for pre-junior college education, corrected by "A" for secondary education. These figures came from U.S., Office of Education, Digest of Educational Statistics (Washington: Government Printing Office, 1966, 1967, 1968), and U.S. Office of Education, Statistics of State School Systems, 1963-1964 (Washington: Government Printing Office, 1968).

8. See footnote 3.

9. U.S. Department of Health, Education, and Welfare, Vocational and Technical Education, Annual Report Fiscal Year 1967 (Washington: Government Printing Office, 1969), p. 105; and U.S. Department of Commerce, Statistical Abstract of the United States 1969 (Washington: Government Printing Office, 1969), p. 124.

Table 5-6

Estimated Excess Cost of Vocational Education in Public Secondary Schools for 1980 (in 1969 Dollars)

State	Estimated Enrollment (in Thousands)	Estimated Excess Cost per Secondary Voc. Ed. Student		Estimated Excess Cost for Voc. Ed. (in Thousands of Dollars)	
		Low	High	Low	High
(1)	(2)	(3)	(4)	(5)	(6)
U.S. AVERAGE	6,277.0	$112	$172	$703,024	$1,079,644
Alabama	152.3	55	83	8,377	12,641
Alaska	16.0	190	280	3,040	4,480
Arizona	49.6	96	133	4,762	6,597
Arkansas	73.3	78	117	5,717	8,576
California	506.6	113	170	57,246	86,122
Colorado	67.6	101	151	6,828	10,208
Connecticut	91.0	138	207	12,558	18,837
Delaware	10.4	134	206	1,394	2,142
District of Columbia	14.2	224	311	3,181	4,416
Florida	279.1	81	117	22,607	32,655
Georgia	205.2	49	74	10,055	15,185
Hawaii	33.3	92	135	3,064	4,496
Idaho	30.0	73	103	2,190	3,090
Illinois	373.2	76	104	28,363	38,813
Indiana	135.7	104	146	14,113	19,812
Iowa	50.9	216	318	10,994	16,186
Kansas	17.2	137	193	2,356	3,320
Kentucky	109.2	89	129	9,719	14,087
Louisiana	114.7	83	117	9,520	13,420
Maine	34.6	101	143	3,495	4,948
Maryland	98.9	117	175	11,571	17,308
Massachusetts	136.8	132	186	18,058	25,445
Michigan	175.1	134	196	23,463	34,320
Minnesota	73.9	138	195	10,198	14,411
Mississippi	73.7	81	124	5,970	9,139
Missouri	117.5	96	144	11,280	16.920
Montana	21.1	122	187	2,574	3,946
Nebraska	24.0	86	129	2,064	3,096
Nevada	16.5	119	171	1,964	2,822
New Hampshire	14.2	117	180	1,661	2,556
New Jersey	275.4	140	204	38,556	56,182
New Mexico	32.8	96	148	3,149	4,854
New York	625.2	177	259	110,660	161,927
North Carolina	267.3	57	82	15,236	21,919
North Dakota	15.8	101	148	1,596	2,338

Table 5-6 (cont'd)

State	Estimated Enrollment (in Thousands)	Estimated Excess Cost per Secondary Voc. Ed. Student		Estimated Excess Cost for Voc. Ed. (in Thousands of Dollars)	
		Low	High	Low	High
(1)	(2)	(3)	(4)	(5)	(6)
Ohio	277.7	$ 107	$ 153	$ 29,714	$ 42,488
Oklahoma	79.5	68	102	5,406	8,109
Oregon	48.0	137	210	6,576	10,080
Pennsylvania	245.0	136	218	33,320	53,410
Rhode Island	15.3	171	241	2,616	3,687
South Carolina	96.8	75	106	7,260	10,261
South Dakota	20.5	112	167	2,296	3,424
Tennessee	166.4	94	150	15,642	24,960
Texas	377.2	91	136	34,325	51,299
Utah	67.2	57	82	3,830	5,510
Vermont	13.0	130	200	1,690	2,600
Virginia	176.6	78	118	13,775	20,839
Washington	197.0	76	114	14,972	22,458
West Virginia	43.5	98	157	4,263	6,830
Wisconsin	98.9	150	240	14,835	23,736
Wyoming	22.1	111	162	2,453	3,580

Sources:

Column 2: Estimates from Table 4-8, column 2.
Column 3 and 4: Estimates from Table 5-5, columns 5 and 6.
Column 5: Column 2 times column 3.
Column 6: Column 2 times column 4.

Table 5-7

Junior College Vocational Education Costs, 1980
(in 1969 Dollars)

State (1)	Estimated Base Cost per Secondary Student (2)	Estimated Base Cost per Junior College Student (3)	Low Excess Cost per Junior College Student (4)	High Excess Cost per Junior College Student (5)
U.S. AVERAGE	$ 860	$1,032	124	237
Alabama	461	553	66	127
Alaska	1,119	1,343	161	309
Arizona	741	889	107	204
Arkansas	558	670	80	154
California	809	971	117	223
Colorado	718	862	103	198
Connecticut	984	1,181	142	272
Delaware	894	1,073	129	247
District of Columbia	1,245	1,494	179	344
Florida	732	878	105	202
Georgia	613	736	88	169
Hawaii	709	851	102	196
Idaho	608	730	88	168
Illinois	947	1,136	136	261
Indiana	693	832	100	191
Iowa	1,271	1,525	183	351
Kansas	806	967	116	222
Kentucky	806	967	116	222
Louisiana	690	828	99	190
Maine	841	1,009	121	232
Maryland	972	1,166	140	268
Massachusetts	776	931	112	214
Michigan	1,031	1,237	148	285
Minnesota	814	977	117	225
Mississippi	539	647	78	149
Missouri	798	958	115	220
Montana	814	977	117	225
Nebraska	613	736	88	169
Nevada	853	1,024	123	236
New Hampshire	782	938	113	216
New Jersey	1,076	1,291	155	297
New Mexico	642	770	92	177
New York	1,361	1,633	196	376
North Carolina	633	760	91	175
North Dakota	777	932	112	214

Table 5-7 (cont'd)

State (1)	Estimated Base Cost per Secondary Student (2)	Estimated Base Cost per Junior College Student (3)	Low Excess Cost per Junior College Student (4)	High Excess Cost per Junior College Student (5)
Ohio	$ 764	$ 917	$ 110	$ 211
Oklahoma	569	683	82	157
Oregon	914	1,097	132	252
Pennsylvania	908	1,090	131	251
Rhode Island	1,006	1,207	145	278
South Carolina	626	751	90	173
South Dakota	797	956	115	220
Tennessee	626	751	90	173
Texas	755	906	109	208
Utah	634	761	91	175
Vermont	998	1,198	144	276
Virginia	784	941	113	216
Washington	763	916	110	211
West Virginia	655	786	94	181
Wisconsin	1,000	1,200	144	276
Wyoming	850	1,020	122	235

Sources:

Column 2: Table 5-1, column 4.

Column 3: Column 2 multiplied by 1.2. The 1.2 ratio was derived from studies cited in footnote 7.

Column 4: Column 3 multiplied by low P_4 = .12.

Column 5: Column 4 multiplied by high P_4 = .23.

Table 5-8

Estimated Excess Cost of Vocational Education in Public Junior Colleges for 1980 (in 1969 Dollars)

State	Estimated Enrollment (in Thousands)	Estimated Excess Cost per Junior College Student		Estimated Excess Cost for Voc. Ed. (in Thousands of Dollars)	
		Low	High	Low	High
(1)	(2)	(3)	(4)	(5)	(6)
U.S. TOTAL	1,976.5	$124	$237	$245,086	$468,431
Alabama	25.9	66	127	1,709	3,289
Alaska	.6	161	309	97	185
Arizona	12.9	107	204	1,308	2,632
Arkansas	8.1	80	154	648	1,247
California	709.2	117	223	82,976	158,152
Colorado	16.9	103	198	1,741	3,346
Connecticut	10.9	142	272	1,548	2,965
Delaware	.2	129	247	26	49
District of Columbia	2.4	179	344	430	826
Florida	178.6	105	202	18,753	36,077
Georgia	22.6	88	169	1,989	3,819
Hawaii	10.0	102	196	1,020	1,960
Idaho	4.5	88	168	396	756
Illinois	78.4	136	261	10,662	20,462
Indiana	8.1	100	191	810	1,547
Iowa	16.8	183	351	3,074	5,897
Kansas	4.8	116	222	557	1,066
Kentucky	9.8	116	222	1,137	2,176
Louisiana	27.5	99	190	2,723	5,225
Maine	2.8	121	232	339	650
Maryland	7.9	140	268	1,106	2,117
Massachusetts	32.8	112	214	3,674	7,019
Michigan	56.0	148	285	8,288	15,960
Minnesota	28.8	117	225	3,370	6,480
Mississippi	10.3	78	149	803	1,535
Missouri	14.1	115	220	1,622	3,102
Montana	6.1	117	225	714	1,373
Nebraska	8.9	88	169	783	1,504
Nevada	3.5	123	236	431	826
New Hampshire	2.3	113	216	260	497
New Jersey	11.0	155	297	1,705	3,267
New Mexico	11.8	92	177	1,086	2,089
New York	168.8	196	376	33,085	63,469
North Carolina	45.4	91	175	4,131	7,945
North Dakota	4.1	112	214	459	877

Table 5-8 (cont'd)

State	Estimated Enrollment (in Thousands)	Estimated Excess Cost per Junior College Student		Estimated Excess Cost for Voc. Ed. (in Thousands of Dollars)	
		Low	High	Low	High
(1)	(2)	(3)	(4)	(5)	(6)
Ohio	44.4	$110	$211	$4,884	$9,368
Oklahoma	8.7	82	157	713	1,366
Oregon	25.9	132	252	3,419	6,527
Pennsylvania	24.5	131	251	3,210	6,150
Rhode Island	2.1	145	278	305	584
South Carolina	32.9	90	173	2,961	5,692
South Dakota	2.3	115	220	265	506
Tennessee	23.3	90	173	2,097	4,031
Texas	98.1	109	208	10,693	20,405
Utah	9.4	91	175	855	1,645
Vermont	1.0	144	276	144	276
Virginia	21.2	113	216	2,396	4,579
Washington	63.0	110	211	6,930	13,293
West Virginia	3.0	94	181	282	543
Wisconsin	52.4	144	276	7,546	14,462
Wyoming	1.5	122	235	183	353

Sources:

Column 2: Estimates from Table 4-8, column 3.
Columns 3 & 4: See Table 5-7 and the text for source of estimates.
Column 5: Column 2 times column 3.
Column 6: Column 2 times column 4.

ADULT EXCESS COSTS

Almost no data on adult vocational students, by states, were avilable. Therefore, only national projections were made.

Data from five state departments of education, weighted by 1967-68 enrollment figures, showed an estimated full-time enrollment (FTE) of 22 percent.[10] This was rounded to .20 FTE. On the assumption that the majority of adults take vocational courses in secondary institutions, their vocational excess cost was arrived at by multiplying the basic secondary cost by the excess cost range of 60 percent to 90 percent. These excess costs were then multiplied by the estimated FTE of 838,280 (4,191,400 x .20) for adults in 1980. This then provided a 1980 adult excess cost of $432,552,000 as a low estimate and $648,829,000 as a high estimate.

SPECIAL NEEDS EXCESS COSTS

The number of special students in vocational education is rapidly increasing, as is the average cost per student. From fiscal year 1965 (FY '65) to FY '68, the number of special students rose from 25,700 to 111,000.[11] Federal and matching funds increased from $805,000 in FY '65 to $20,500,000 in FY '69. In 1968 Congress amended the Vocational Education Act of 1963 to require that 25 percent of the Federal funds appropriated for this Act be spent for students with special needs. Special needs costs vary depending upon individual student needs. Vocational students cost from 1.6 to 1.9 times the amount required for a regular secondary student. Special education vocational students were considered to spend 50 percent of their time in courses with added costs as compared to 33 percent time spent by regular vocational students. This assumption was made because these students' handicaps would require them to spend added time in high cost special courses.

After dividing the estimated 1980 enrollment in special vocational education (1,717,400) by 2, the quotient (the 1980 FTE special education students) was multiplied by the excess cost for these students (see Table 5-9). The low estimate of the excess cost was $516 per secondary vocational special student and the high excess cost estimate was $774 per student. Multiplication of the excess cost by the FTE students in 1980 showed a low national excess cost of $443 million, and a high national excess cost of $665 million.

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[10] The data for states came from State Departments of Education in Michigan, Minnesota, New Hampshire, Texas, and Utah.

[11] Data on special needs students and funds spent came from: U.S. Office of Education, Vocational and Technical Education (Washington: Government Printing Office, 1965, 1966, 1967) and U.S. Office of Education, Digest of Educational Statistics for 1969 (Washington: Government Printing Office, 1969).

CONCLUSIONS

At 1969 prices, the projected cost of vocational education in 1980 is expected to be between $1,824 million and $2,862 million above the cost of educating the same 14 million students in academic and vocational curricula (see Table 5-10). Accuracy of these estimates depends, of course, on the population projections made in this study, and on cost ratios between vocational education and all education obtained from those sources used.

For the high excess cost estimates, 38 percent of the total vocational education cost is expected to be for secondary schools, which will have 44 percent of the total national enrollment. Adult costs will comprise 23 percent of the total because of the large number of adult students, 30 percent of the total vocational enrollment. Special needs excess cost will comprise 23 percent of the total high estimate because of the high cost per student. Junior college outlays for vocational education are 16 percent of the estimated excess costs because junior college students cost about 1.2 times as much as secondary students, and because, by 1980, 14 percent of the vocational education students will be in two-year colleges.

In 1967, 33 percent of the students in secondary and post-secondary education were enrolled in vocational education.[12] With 8.3 million students enrolled in vocational education at these levels in 1980, it seems reasonable to anticipate expenditures of between $948 million and $1,548 million in excess costs for their vocational education.

The estimated total excess cost of vocational education for high schools and junior colleges reported in this chapter is based upon the average current expenditure per student in these institutions. It is an estimate of the amount required for vocational education in excess of the amount which would have been required if the average annual amount expended for all students had been spent upon the students enrolled in vocational education programs.

An alternate procedure which relates expenditures per student for vocational education to expenditures per pupil in all other courses (excluding vocational education) produces a higher estimate. In this procedure, an estimate is made of the amount required for vocational education in excess of the amount which would have been required if the average annual amount expended per student for all other courses had been spent for students enrolled in vocational education programs.

In the first procedure, high cost courses in vocational education affect the average annual amount expended for all students, increasing the base cost and thereby reducing the computed excess cost of vocational education programs. In the second procedure, the cost of all other courses (excluding vocational education) constitutes the base for computing the excess cost.

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[12] U.S. Department of Commerce, Statistical Abstract of the United States, 1969 (Washington: Government Printing Office, 1969), Table 160; and U.S. Department of Health, Education, and Welfare, Vocational and Technical Education, Annual Report Fiscal Year 1967 (Washington: Government Printing Office, 1969), Tables 2 and 3.

Table 5-9

Estimating Special Needs for Vocational Education Excess Costs[1] for 1980 (in 1969 Dollars)

		Low Estimate	High Estimate
1)	Ratio of Excess Costs for Special Needs Vocational Students to Costs of Secondary Students	1.6	1.9
2)	School Cost per Secondary Student	$860	$860
3)	Total Cost per Special Needs Vocational Student	$1,376	$1,634
4)	Excess Cost[1] per Special Needs Vocational Education Student	$516	$774
5)	Full-Time Equivalent Special Needs Vocational Students in 1980	858,700	858,700
6)	1980 National Excess Cost for Special Needs Student	$443,089,200	$664,633,800

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[1] Excess Cost equals costs above average secondary student.

Sources:
Item 1: Estimated by staff to obtain Excess Costs for Special Needs student.
Item 2: From Table 5-5, column 2.
Item 3: Row 1 x Row 2.
Item 4: Row 3 less $860, the average annual cost per secondary school student.
Item 5: 1,717,400 divided by 2.
Item 6: Row 4 x Row 5.

Table 5-10

Estimated Excess Cost of Public Vocational Education Programs for the Nation in 1980 (in 1969 Dollars)

Level of Schooling	Estimated Enrollment (in Thousands)	Estimated Excess Cost (in Thousands of Dollars)	
		Low	High
(1)	(2)	(3)	(4)
Secondary	6,277.0	$ 703,024	$1,079,648
Junior College	1,976.5	245,086	468,431
Adult	4,191.4	432,552	648,829
Special Needs	1,717.4	443,089	664,634
TOTAL	14,162.3	$1,823,751	$2,861,538

Sources: Column 2: From Table 4-8.
Column 3 and 4: Excess cost data taken from Table 5-6, 5-8, and 5-9.

These two procedures require different formulas for estimating the percent of the total cost of secondary schools required to pay the excess cost of vocational education programs. The formula for the first procedure is:

$$P_6 = \frac{P_1 P_2 P_3 - P_1^2 P_2 P_3}{1 + P_1 P_2 P_3}$$

where P_6 is the percent of the total annual expenditure for high schools (or junior colleges) needed to pay the excess cost of vocational education programs where excess cost is related to the average amount expended per student for all courses (including vocational education). The other variables P_1, P_2, and P_3 are defined as before.

The formula for the second procedure in which the excess cost is related to average amount expended for all other courses (excluding vocational education) is:

$$P_7 = \frac{P_1 P_2 P_3}{1 + P_1 P_2 P_3}$$

where P_7 is the percent of the total annual expenditure for high schools (or junior colleges) needed to pay the excess cost of vocational education courses, when the excess cost is related to the cost per pupil for all other courses excluding vocational education.

Estimates of the percent of the total annual current expenditures for public secondary schools required to pay the excess cost of vocational education programs in 1969 were:

	P_6 Basis	P_7 Basis
High Estimate	5.2%	7.5%
Low Estimate	3.6%	5.1%

These formulas should be useful in estimating amounts required to pay the excess cost of vocational education programs. Their effective use, however, depends upon the availability of accurate information concerning numerical values for P_1, P_2, and P_3. Additional research is needed to obtain these values before projections based upon these formulas can be used for administrative purposes.

CHAPTER VI

ALLOCATION OF FEDERAL VOCATIONAL EDUCATION FUNDS WITHIN STATES

The Vocational Education Amendments of 1968 made several changes in traditional vocational education policy. One of the most important of these was the Congressional direction to the state boards of vocational education that they could no longer allocate Federal vocational funds to local educational agencies on a uniform basis. Individual characteristics of districts in terms of needs, wealth, and costs had to be considered in all state systems for allocation of Federal funds. Section 123 of the Act states that: ". . . funds made available under this title will not be allocated to local educational agencies in a manner such as the matching of local expenditures at a percentage ratio uniform throughout the state."[1]

Regulations issued by the U.S. Office of Education require state boards to describe specifically the policies and procedures which constitute their systems of allocating Federal vocational funds. The regulations state that: ". . . the State plan shall describe in detail the policies and procedures by which the State Board determines how the funds allotted to it under Part B of the Act will be allocated among local educational agencies of the State."[2]

These regulations are based upon provisions of the Act which require that the policies and procedures constituting the system for allocating Federal vocational funds to local agencies shall reflect: (1) manpower needs, (2) vocational education needs of the population, (3) relative ability of districts to pay, and (4) excess costs. Also, states were allowed to include additional allocation policies and procedures as long as the four criteria were not neglected.

The following summary of state allocation methods is based upon an analysis of state plans for the following fifteen states: California, Colorado, Florida, Illinois, Michigan, Minnesota, New Hampshire, New York, Ohio, Oregon, Tennessee, Texas, Utah, Washington, and Wisconsin.

MANPOWER NEEDS

The 1968 Amendments mandated that in their systems for allocating Federal vocational education funds, the states give due consideration to manpower needs of the local educational agencies. Therefore, the first problem the states encountered was that of defining or quantifying their districts' manpower needs for purposes of allocation.

The solution of this problem was only partially provided in the Act: ". . . due consideration will be given to the results of periodic evaluations of State and local vocational education programs, services, and activities in the light of information regarding current and projected manpower needs and job opportunities . . . ."[3] However, the U.S.O.E. regulations clearly defined manpower needs as job opportunities. "(State boards must consider) current or projected manpower needs in existing occupations at the local level by preparing students for current or projected job opportunities. . . ."[4]

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[1] U.S., Congress, Public Law 90-576, Vocational Education Amendments of 1968, October 16, 1968, Section 123-6E.

[2] U.S. Office of Education, Regulations for State Plan Programs (Vocational Education Amendments of 1968), Section 102.51-3d.

Although meeting manpower needs has always been an objective from the beginning of the vocational education movement, states have encountered many difficulties in designing allocation systems which give due consideration to the manpower needs of their local educational agencies. One source of these difficulties is that traditionally the production and handling of manpower data has been the responsibility of the Department of Labor and its affiliated agencies. State divisions of vocational education have lacked personnel with expertise in the manpower area.

One of the practical difficulties generated by this traditional separation of manpower studies from vocational education is the problem of converting the Labor Department statistics, as published in the terminology of the Dictionary of Occupational Titles, to the classification system of the U.S. Office of Education. In one state, the Department of Human Resources interpreted its agreement with the Department of Education as justification for assigning a manpower expert to work with vocational adjustment personnel in the transposition of DOT language into U.S.O.E. vocational education program terms.

However, even with complete access to and understanding of the Department of Human Resources' data, some vocational educators believe that these data present only a partial picture of a local educational agency's manpower needs. For example, most farm positions are neither listed with nor filled by local offices of the Department of Human Resources. In only a few states has there been effective identification of local educational agency manpower needs. Essential data to this end have been obtained by means of intensive, cooperative area manpower studies by the regional offices of the Department of Human Resources, the Division of Vocational Education, and other public and private agencies.

Finally, some vocational educators object to local, or even regional, manpower needs as an allocation criterion because of the mobility of our population and the fluctuations that may occur in area job opportunities, caused by such factors as changes in Federal defense spending. These educators believe that a larger percentage of our students should be guided into vocational training in the broader skills which reflect state or national patterns of employment. They question the validity of allocating funds to a local educational agency for the development of a highly specialized vocational training program to meet the manpower requirements of an industry which may report a current large number of job opportunities and yet have a relatively short life in the area because of changing national economic conditions.

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[3] U.S., P. L. 90-576, op. cit., Section 123-6A.

[4] U.S.O.E. Reg., op cit., Section 102.53.

Table 6-1 summarizes the methods used to assess manpower needs in local educational agencies which were identified from an analysis of state plans and interviews in fifteen states. Only two states treated manpower needs with specificity, by identifying job opportunities at the local, state, and national levels, to produce a quantified manpower factor for their allocation systems. One of these states ranked local educational agencies by the following criteria:

1. Number of unfilled job openings in locality;
2. Number of local job openings training to be provided for;
3. Number of state job openings training to be provided for;
4. Number of national job openings training to be provided for.

Seeking fewer specifics in considering manpower needs, four states used regional manpower studies to rank local educational agencies for funding. Four other states required their local educational agencies to identify manpower needs to be met by new vocational courses as a prerequisite for these courses being funded from Federal sources.

The most frequent practice was for the state plan to require that local plans and applications give due consideration to the manpower needs of the district in order for the local educational agency to qualify for Part B funds. In these states, a quantified manpower need factor was not subjectively or objectively assigned to each local educational agency by state or local personnel. A local educational agency could satisfy the Federal-state requirement by including only a statement that manpower needs would be taken into account. Sometimes this affidavit would be accompanied by an additional statement that the local vocational education advisory council would consider the manpower needs of the area in planning the vocational program of the district.

The lack of specificity which predominated in the fifteen sample states is verification of the difficulties encountered by states in trying to include manpower needs as a factor in their allocation systems to distribute Part B funds.

VOCATIONAL EDUCATION NEEDS

In virtual contrast to manpower needs, which are defined as job opportunities in the labor market, vocational education needs are defined in terms of the needs of people. Section 123 of the Act establishes vocational education needs as an allocation criterion by stating: " . . . due consideration will be given to the relative vocational education needs of all population groups . . . particularly persons with academic, socioeconomic, mental, and physical handicaps that prevent them from succeeding in regular vocational education programs . . . ."[5]

The U.S.O.E.'s regulation on vocational education needs clarifies the Act's intent by requiring state boards to establish allocation priorities among districts according to the needs of their students. The regulation states:

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[5] U.S., P. L. 90-576, op. cit., Section 123-6B.

> . . . the State board shall give particular consideration to additional financial burdens . . . which may be placed upon certain local educational agencies by the necessity of providing vocational education students, particularly disadvantaged or handicapped students, with special education programs and services such as compensatory or bilingual education, which are not needed in areas or communities served by other local educational agencies in the state . . . .[6]

Table 6-1

Methods Used to Assess Manpower Needs in the Allocation of Part B Funds in Local Educational Agencies

	State Policy	Number of States
1.	Manpower needs of each LEA are quantified (numbers of job openings in the district and state, etc.) and become factors in the state's formula or ranking system for allocation of Part B funds to the LEA	2
2.	Identification of manpower needs to be met by new vocational education courses is a prerequisite for LEA qualification for Part B funds for these new courses	4
3.	State personnel utilize regional studies of manpower needs by school and non-school agencies for ranking of LEA's for Part B fund allocation purposes	4
4.	State plans require that LEA plans and applications give due consideration to the manpower needs of the district in order for the LEA to qualify for Part B funds	5

In the implementation of the vocational education needs criterion, the states were faced with questions such as the following:

1. Is a simple enumeration of the vocational education class enrollments of regular, handicapped, and disadvantaged students an adequate description of the vocational education needs of a district?
2. Are the vocational education needs of a district the product of such factors as the ethnic composition of the school population, the unemployment rate of the area, the school dropout rate, etc.?
3. Are the vocational education needs of a district described by a combination of the answers to questions 1 and 2?

Once the method of defining the vocational education needs of the local educational agency was chosen, fewer difficulties were encountered with this criterion than with manpower needs. States had ready access to such district data as enrollments of regular students, ESEA Title I pupil counts, unemployment rates for areas, and ethnic surveys of school populations. However, states did have difficulty in identifying specifically disadvantaged students.

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[6] U.S.O.E. Reg., op. cit., Section 102.54.

Table 6-2 summarizes the methods used to describe vocational education needs in the allocation of Part B funds to local educational agencies. The most common method, used in seven of the fifteen states, was to convert pupil counts of regular, handicapped, and disadvantaged vocational students directly to numerical factors in the state's allocation system for Part B funds. Use of enrollment data as a procedure for identifying district vocational education needs provided states with objective indicators that were readily available.

A comparison of vocational education pupil counts with other data, such as total school enrollments and dropout rates, was used by two states to compute the vocational education needs factor.

Table 6-2

Methods Used to Assess Vocational Education Needs in the Allocation of Part B Funds in Local Educational Agencies

State Policy	Number of States
1. Pupil counts of regular, handicapped, and disadvantaged vocational students are converted directly into factors in the state's formula or ranking system for allocation of Part B funds to LEA's	7
2. Pupil counts of regular, handicapped, and disadvantaged vocational students are compared to other data such as total school enrollment, dropout rate, etc., to compute the vocational need factor in the state formula or ranking system for allocation of Part B funds to the LEA	2
3. State personnel utilize data other than pupil counts such as economic, demographic, evaluative studies, etc., to assign vocational education need weightings to LEA's which become factors in the state formula or ranking system for allocation of Part B funds to the LEA's.	4
4. State plans require that the LEA's plan and application provide evidence of meeting the vocational education needs of the area in order for the LEA to qualify for Part B funds	2

A different approach from that of pupil counts made use of such data as area economic and population studies and evaluations of district vocational programs in order to weigh education needs in local educational agencies. This method was adopted by four states. Educators in these states believed that the non-enrollment data provided a better description of the vocational education needs of the people than were obtained from the simple, objective pupil count.

Two states did not specify the types of data to be used in identifying the vocational education needs of the local educational agency. These states required that the districts' plans and applications provide evidence of their own choosing that their vocational programs would meet the vocational education needs in their areas.

RELATIVE ABILITY TO PAY

Current discussions on the topic of equalizing educational opportunity emphasize that consideration must be given both to the disparity in the educational needs of people, and to the varying fiscal abilities of school districts to support needed programs. Differences in the needs of people are provided for in the Federal allocation criterion which determines a funding based on the needs of all population groups. In the distribution of Part B funds with reference to differences in fiscal ability among districts, recourse is to the criterion: relative ability to pay. Section 123 of the Vocational Education Amendments of 1968 provides, in part:

> (In the allocation of Part B funds) due consideration will be given to the relative ability of particular local educational agencies within the State, particularly those in economically depressed areas and those with high rates of unemployment, to provide the resources necessary to meet the vocational education needs in the areas or communities served by such agencies ....[7]

U.S.O.E. regulations covering this criterion set forth the following procedures for determining the relative ability of local educational agencies to pay for needed vocational programs:

1. Compare the adjusted assessed valuation per student of the districts.
2. Compare the total taxable income per student of the districts.
3. Use some similar measure which the state board considers fair and equitable to all districts.[8]

Table 6-3 summarizes the methods used to evaluate a local educational agency's relative ability to pay for education. It shows that six states used the method of comparing the agency's adjusted assessed valuation per pupil to the state's average adjusted assessed valuation per pupil.

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[7] U.S., P. L. 90-576, op. cit., Section 123-6C.

[8] U.S.O.E. Reg., op. cit., Section 102.55.

Although a local educational agency's effort factor, as indicated by its tax levy, is not suggested by the Act or by U.S.O.E. regulations, six states included effort in their implementation of the relative ability to pay criterion. Five of these states compared the local educational agency's tax levy and adjusted assessed valuation per pupil with the state's average tax levy and average assessed valuation per pupil. One state awarded points to local educational agencies for the amount of tax levied in excess of the required state minimum.

An index of economic ability, which may include such components as state retail sales taxes collected, motor vehicle registration, and farm products sold, was used by three states in evaluating a local educational agency's relative ability to pay. The index of economic ability determines the amount of local funds per pupil that a district is required to raise. This amount per pupil is used to rank local educational agencies for Part B funds. The districts that can raise the largest amounts of local funds receive the lowest amounts of Part B funds.

No difficulties were reported by states in implementing the Act's relative ability to pay criterion. Adjusted assessed valuation per pupil, tax rates levied, and indices of economic ability were readily available from the states' general education state-aid data.

Table 6-3

Methods Used to Evaluate the Local Educational Agency's Relative Ability to Pay for Education in the Allocation of Part B funds

State Policy	Number of States
1. State compares the local educational agency's adjusted assessed valuation per pupil to the state's average adjusted assessed valuation per pupil	6
2. State compares the local educational agency's tax levy and its adjusted assessed valuation per pupil to the state's average tax levy and average adjusted assessed valuation per pupil	5
3. State awards ranking points for the amount of LEA tax levied in excess of the state required minimum rate	1
4. State ranks LEA's according to their per pupil local fund assignment as determined by their index of economic ability which includes such components as state retail sales tax collected, motor vehicle registration, farm products sold, etc.	3

EXCESS COST

After determination of manpower needs, vocational education needs, and the relative ability to pay, a final criterion to be considered in the allocation of Part B funds is the excess cost of vocational education programs. Section 123 of the Act defines excess cost and establishes it as an allocation criterion by stating, in part: "(In the allocation of Part B funds) due consideration will be given to the cost of the (vocational education) programs, services, and activities provided by local educational agencies which is in excess of the cost which may normally be attributed to the cost of education in such local educational agencies . . . ."[9]

The U.S.O.E. regulations suggest that in defining excess costs of local vocational education programs, the state board should give primary consideration to the added costs of materials, special services, transportation, and maintenance incurred by local educational agencies.[10]

Table 6-4 summarizes the methods used to define the excess cost of vocational education programs. Eight of the states determined the excess cost to the local educational agency by comparing each agency's per pupil cost of vocational education with the state's average per pupil cost of education. The popularity of this method rests on two factors: (1) the state average per pupil cost of education is one of the most readily available of statistics used in measuring educational costs; and (2) the comparison of the local vocational education cost per pupil with the state's average per pupil cost of education comes nearest of any other procedure to the literal implementation of the definition of the excess cost criterion of the 1968 Act.

Table 6-4

Methods Used to Define the Excess Cost of Vocational Education in Local Educational Agencies in the Allocation of Part B Funds

State Policy	Number of States
1. State compares the local educational agency's per pupil cost of vocational education to the state's per pupil foundation program amount	1
2. State compares the local educational agency's per pupil cost of vocational education to the state's average per pupil cost of education.	8
3. State compares the local educational agency's per pupil cost of vocational education to the state's average per pupil cost of vocational education	3
4. State compares the local educational agency's per pupil cost of vocational education to the local educational agency's per pupil cost of education	3

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[9] U.S., P. L. 90-576, op. cit., Section 123-6D.

[10] U.S.O.E., Reg., op. cit., Section 102.56.

The remaining seven states determined their local agencies' excess costs by comparing each agency's per pupil cost of vocational education with other educational costs. Three of the states compared their districts' per pupil costs of vocational education with the state average per pupil cost of vocational education. Three other states compared each district's vocational education per pupil cost with its per pupil cost of education. One state compared its districts' vocational education costs per pupil with the amount of funds the districts received per pupil through the state foundation program.

The states reported having more difficulty with the excess cost criterion than with any of the other federally mandated criteria. In fact, although states have specified in their state plans procedures for using excess costs in their allocation systems, few states have been able to identify completely the excess costs inherent in vocational education.

Under pressure from state legislatures and the 1968 Vocational Education Amendments' criterion of excess costs, state departments have been forced to experiment in the development of procedures for determining the total cost of vocational education and a method by which to ascertain its excess cost. However, vocational education staffs have found much necessary data impossible to obtain.

The major difficulty for most departments was the lack of a program accounting system. Although many states had developed various reporting forms designed to get at excess costs, the forms did not identify the indirect cost of vocational education, and, as a result, failed to reflect an accurate total cost of vocational education (see section on Determining the Cost of Vocational Education).

OTHER ALLOCATION CRITERIA OF THE STATES

Manpower needs, vocational education needs, relative ability to pay, and excess costs are the only Part B allocation criteria discussed specifically in the Vocational Education Amendments of 1968. It is not the intent of the Act, however, that the states should restrict themselves to these four criteria. The Act's intent is best expressed in its "Declaration of Purpose," which states, in part: "It is the purpose of this title to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education . . . . "

The only requirement regarding the states' use of criteria other than the four specified by the Act is part of the U.S.O.E. regulations, which ask that state plans and applications include descriptions of all information which state boards require of local districts as bases of fund allocations. Section 102.60 of the regulations, dealing with the content of local applications, asks for the following:

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11. U.S., P. L. 90-576, op. cit., Section 101.

> The application shall also contain such other information as may be required by the State board in determining allocations of (Part B) funds . . . and in determining whether the programs, services, and activities proposed therein will otherwise meet all other applicable requirements in the Act, the regulations . . . and the State plan.[12]

Table 6-5 summarizes the criteria used in allocating Part B funds to local educational agencies in addition to the four mandated criteria. One criterion was used to give local education agencies additional points for implementing new vocational education programs. This was consistent with the Act's intent "to develop new programs of vocational education."

This criterion of "innovation" was used by two of the fifteen states covered by the study. One of these states awarded Part B funds on a competitive grant basis to those districts which developed vocational education programs to meet new needs that had been identified in regional studies. The second state gave its local educational agencies a higher priority rating in its Part B entitlement system for implementing new vocational education programs that met newly identified needs.

Table 6-5

Additional Criteria Used in Allocating Part B Funds to Local Educational Agencies

	State Policy	Number of States
1.	Implementation of new vocational education programs . . .	2
2.	Results of follow-up studies of vocational education program graduates	1
3.	District pupil-teacher ratio	1
4.	Ratio of certified teachers to all certified personnel . . .	1
5.	Rate of teacher turnover	1
6.	Number of supervisors of vocational education programs .	1

Other criteria shown in Table 6-5 were infrequently used, none being used in more than one state. The "follow-up studies of vocational education graduates," and the "number of vocational education supervisors" indicate the nature of a local vocational education program and, therefore, are valid criteria for allocating Part B funds. However, the other criteria shown in Table 6-5 are subject to question as components of a vocational education fund allocation system.

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[12] U.S.O.E. Reg., op. cit., Section 102.60.

PART "B" FUNDS ALLOCATION SYSTEMS

Application of the above criteria in determining the relative priority of local applications has resulted in the development of two types of allocations systems. These can be described in general terms as (1) a formula, and (2) a ranking, system.

The formula system, employed in four states, attempted to quantify the allocation criteria into objective data for each local educational agency. Examples of the types of data quantified for local districts were:

1. The average daily attendance (ADA) of regular, handicapped, and disadvantaged students in vocational and non-vocational courses.
2. The adjusted assessed valuation per ADA for the local district compared with the state average for such districts.
3. The local tax rate levied compared with the state average or required minimum rate for such districts.
4. The unemployment rate for the district's area compared with the state's average unemployment rate.
5. The number of job opportunities in the district compared with the number available in the state.
6. The cost of the local vocational education program in excess of the cost of general education for comparable school organizations.

These data were combined in different ways by states to produce decimal equivalents for all districts in the state. These were then multiplied by the state's total Part B funds to arrive at a district's entitlement. These entitlements were communicated to each district. If the district vocational education program met the rest of the requirements of the state's plan, the district received its entitlement.

Formula systems attempted to make the allocation decision making completely impersonal and objective. This aim was not achieved completely, as a certain amount of subjectiveness entered into the treatment of such varied and broad data as weighted ADA, equalized assessed valuations, employment rates, and definitions of excess cost. However, once decisions were made on these data, formula systems were largely objective.

A further advantage of formula systems was that they could readily be computerized. One state was able to retrieve the district input data of enrollments, assessed valuations, and tax rates from the computer data banks of the general state aid system and apply these data in the Part B funds allocation formula with increased efficiency in administration of these funds.

The ranking systems for allocation of Part B funds, used by eleven of the fifteen states, treated the allocation criteria more subjectively than did the formula systems. Three sources of subjectivity were apparent in these ranking systems:

1. The application of a ranking system to different districts by one individual.

2. The application of the same ranking system to different regions within a state by different individuals.

3. The use of ranking questions with "soft," non-numerical answers.

An example of the subjectivity inherent in the ranking system was one of several questions used by one state as a measure of the local educational agency's manpower needs: "Is training provided for a new occupational program in the LEA or for emerging jobs?" The maximum point value for manpower needs that a district could earn on this rating scale with "yes" answers to all questions was fifty. A "yes" answer to the above question earned a district twenty points; a "no" answer only one.

While ranking systems were subjective, they had the advantage of being flexible. Where formula systems utilized only three to five items of quantified data, ranking systems contained greater numbers of data in their procedures. The following items, some of which were also used in formula systems, can be provided for easily in a ranking system:

1. Job opportunities
2. Unemployment rates
3. Population characteristics
4. Enrollments (regular, handicapped, disadvantaged)
5. Dropout rates
6. Economically depressed areas
7. Assessed valuations
8. Tax rates
9. Excess costs
10. Implementation of new programs
11. Results of evaluation studies
12. Supervision of vocational education programs

Some procedures for computing Part B fund entitlements for local districts, as used in state application of ranking systems, were the following:

1. Districts were ranked from highest to lowest priority for total funding to the extent that Part B funds were available. Usually, lowest priority projects received no Part B funds.

2. Ranking points were totaled for each district. Quartile rankings of districts were then computed. Each district received a percentage payment of its approved application, depending on its quartile placement.

3. Ranking points were totaled for each district. District totals were summed for the state. The state point total was divided into the Part B funds available, yielding a dollar value for each point. District point totals were then multiplied by the dollar point value to compute the district allocation.

4. One state intended to build an improvement incentive into its ranking system. A district's current year's ranking to all other comparable districts in the state was compared with the past year's ranking. A district was rewarded with a larger allocation of Part B funds for improvement in its ranking over its past year's standing.

CHAPTER VII

A LOOK AHEAD

This report indicates some of the difficulties encountered in analyzing problems related to financing vocational education. The lack of a standardized program accounting system makes the obtaining of valid estimates for the cost of vocational education difficult. Hopefully, this deficiency will be remedied when the new public school accounting guide is published by the U.S. Office of Education.

Other developmental work is needed before a satisfactory system for financing vocational education can become a reality. Among these needs are the following:

1. Development of a Formula for Estimating per Student Costs of Vocational Education Courses and Programs.

   An objective procedure is needed for estimating and controlling the costs of approved vocational education courses and programs. Although it is needed primarily for state administrative purposes, such a formula would also be useful in projecting costs for long-term planning purposes.

   A formula useful for this purpose probably would have the following general structure:

   Cost per student = $\overline{C}\,(\overline{N}/N + K)$

   where $\overline{C}$ = the state average cost per student enrolled in secondary schools or junior colleges.

   $\overline{N}$ = the state average student-faculty ratio in secondary schools or junior colleges.

   N = the expected or approved student-faculty ratio for the vocational education course or program.

   K = a program constant reflecting unusual requirements of the vocational course or program not related to class size. The value of K would vary for different programs.

   While this formula appears to have possibilities, additional research is needed to ascertain values for the constant K and to test how accurately it predicts costs.

2. Development of Policies for Sharing the Cost of Vocational Education Between the Federal Government and the States.

   The formula for allotting Federal vocational education funds among the states contained in the Vocational Education Act of 1963, as amended in 1968, is designed to apportion among states such amounts as may be appropriated. The amounts allotted to each state are proportional to the product of the state's population in designated age groups and its allotment ratio.

The allotment ratio is equal to one minus one-half of the quotient obtained by dividing the per capita personal income of the state by the national average per capita income. The ratios computed in this manner are intended to reflect the capacity of a state to finance needed vocational education programs from state and local tax sources. The application of the allotment ratio formula is constrained by a provision that the ratio may not exceed .6 nor be less than .4. The average value of the allotment ratios is, of course, very close to .5.

Several questions may be asked concerning the allotment formula. Are the population age groups satisfactory measures of the amount of vocational education needed? Can one assume that the cost per person of needed vocational education is the same in all states? Does the allotment ratio, constrained within the legal limits of .4 and .6, provide adequately for equalizing the tax burden for vocational education?

In order to answer these questions, a more precise formula for estimating the cost of an adequate vocational education program for each state is needed. Such a formula would need to consider, in addition to the population for selected age groups, the amount of vocational education required to attain entry level skill for the occupations normally available for initial employment in the state. It would also need to consider prevailing wage rates and other factors affecting the unit cost of education.

After the cost of an adequate vocational education program has been determined for each state, various policies for sharing the cost between the Federal Government and the states need to be examined. Should the state be expected to provide from state and local tax sources for the support of vocational education the same amount per student it provides for general education, counting upon the Federal Government to contribute the "excess" cost of the more expensive courses or should the Federal contribution for vocational education be based upon the total cost of vocational education courses?

If the latter cost base is used, it probably will be necessary to use the equalized matching or variable percentage grant to share the cost between the Federal Government and the states. These and other cost sharing policies need to be examined.

3. Development of Satisfactory Models for Allocating State and Federal Vocational Education Funds Among Local School Systems.

In this report, fifteen state plans for allocation of Federal vocational education funds to local districts have been analyzed. The analysis indicates that the allocation criteria (manpower needs, vocational education needs, relative ability to pay, and excess costs) established by the Vocational Education Amendments of 1968 are sound bases for allocating Federal vocational funds to local districts. However, experience in the fifteen states reviewed in this study revealed several unresolved issues:

(1) Should the definition of the manpower needs of a local educational agency include local, regional, state, or national employment opportunities?

(2) How should the excess cost of vocational education, used in the allocation of Federal funds, be computed? What part of the excess cost should be reimbursed from Federal funds?

(3) Should Federal funds be used to pay the total cost of some approved vocational education programs, e.g., adult education?

(4) How can some states distribute their Federal vocational funds more objectively?

(5) What additional criteria should be used in states' systems for allocating Federal funds for vocational education other than the four mandated by the Act?

With the resolution of these issues, this study indicates that allocation models of the future will move toward objective, computerized systems based on more classes of data than the now commonly used attendance, assessed valuation per pupil, and tax levy.

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APPENDIX A

Résumés of Selected States' Vocational Education Goals, Costs, and Allocation Procedures

The major goal of vocational-technical education in every state is to prepare students in the skills and knowledge required for effective performance in their chosen occupations. This goal may or may not be made explicit, but it underlies all state plans. Methods of working toward this goal vary from state to state, but fundamentally they fall into the following logically progressive steps: (1) the establishment of general goals and student enrollment objectives; (2) the determination and analysis of program costs; and 3) the allocation of vocational education funds.

The reports that follow examine procedures, now in use or presently planned, for developing and administering vocational education programs in fifteen states. It is hoped that publication of these studies, which reveal how specific problems have been solved in widely differing areas, will be useful to agencies and administrators throughout the country as they appraise their own programs of vocational-technical education.

CALIFORNIA

GENERAL PROGRAM GOALS

At no previous time in California has public school vocational education attracted more interest. Current enrollment in federally-aided vocational education programs is more than 990,000, which represents 42 percent of all high school, junior college, and adult school enrollments in California public schools. To accommodate this extensive enrollment, more than 450 high schools and 75 junior colleges offer programs in vocational education which meet the standards of the California State Plan for Vocational Education.

Sixty percent of the 990,000 enrolled in vocational education programs are full-time students. Of this 60 percent, approximately one-half are in high school and the other half are in junior college programs. The remaining 40 percent are adults who receive part-time instruction. Three-quarters of this enrollment is in supplementary programs, including apprenticeship training. The remaining quarter of the adult enrollment is in preparatory programs.

Continued emphasis is placed on the maintenance and improvement of existing vocational programs on all levels. New programs will be initiated and existing programs expanded as the need becomes apparent. Labor market information from the Department of Employment provides the primary indication of need, and this is augmented by representative advisory committees. (Excerpted from "California Projected Program Activities in Vocational Education, Fiscal Year 1969").

A summary of California's vocational education objectives reveals that greatest anticipated growth will occur in the secondary schools. Vocational enrollments are expected to increase by 14 percent by 1974. Enrollment in post-secondary programs will increase by only 5 percent.

Student enrollment objectives for 1974 are as follows (the percentage figures show proportions of various elements of the population expected to be enrolled in at least one vocational education course):

1. 40 percent of secondary students;
2. 12 percent of population, age 15-24, and 45 percent of post-secondary students (in post-secondary facilities);
3. 30 percent secondary, and 40 percent post-secondary of the disadvantaged population;
4. 5 percent of handicapped secondary students;
5. 6 percent of the population, age 16-64 (in adult vocational education).

In California actual enrollment projections by program and grade level for 1975 could not be obtained. Although the State Plan made projections for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Tables A-1 and A-2 show percentages of student enrollment by program and grade level; i.e., the estimated changes of enrollment that will have occurred by 1975 in terms of percent change.

Table A-1

Percent of Vocational Education Enrollment in California by Program and Sex, for 1967, 1969, and Estimated for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	5.02	.38	2.45	8.93	.71	4.01	10.0	1.0	4.0
Distributive	17.77	9.25	13.01	14.66	7.97	10.65	13.0	7.0	11.0
Health	.30	3.42	2.01	.71	4.39	2.92	1.0	4.0	2.0
Home Economics (Gainful)	.19	.44	.93	2.17	34.20	21.36	3.0	34.0	21.0
Home Economics (Useful)	1.54	35.87	20.29	N.A.*	N.A.*	N.A.*	N.A.*	N.A.*	N.A.*
Office	18.33	45.19	32.91	17.50	47.53	35.50	16.0	48.0	36.0
Technical	13.79	1.17	6.80	8.45	.58	3.73	10.0	1.0	5.0
Trade & Industry	43.06	4.28	21.60	47.58	4.62	21.83	47.0	5.0	21.0

*Data not available.

Table A-2

Percent of Vocational Education Enrollment in California by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	1.40	5.00	3.38	2.92	7.01	5.33	1.56	5.25	3.43
Tenth	1.61	4.58	3.25	5.71	10.57	8.58	3.05	7.92	5.52
Eleventh	4.48	10.85	7.98	10.10	15.93	13.54	5.39	11.93	8.70
Twelfth	9.13	19.59	14.89	14.00	18.27	16.52	7.47	13.69	10.62
First Year College	17.33	12.18	14.50	18.76	8.64	12.79	32.70	21.14	26.84
Second Year College	4.90	4.30	4.57	9.11	4.06	6.13	15.87	9.92	12.86
Adult	61.16	43.42	51.40	38.91	35.38	36.82	18.72	23.88	21.33
Special Needs	.02	.00	.01	.48	.14	.28	15.24	6.28	10.70

COST ANALYSIS

The Division of Vocational Education is computerizing California's basic vocational data, including attendance, entitlement formula components, preliminary and final budgets. Expenditure summary forms are currently being fed into the computer for checking and recording. Data on these forms are being stored in the computer center data bank. When final figures are available at the end of this fiscal year, the data bank material will be updated.

The expenditure summary forms follow the California Accounting Manual's classification of expenditures for administration, instruction, and capital outlay. The sum of these three categories represents total program expenditures.

Total program expenditures are listed for the seven basic programs: agriculture, distribution, health, gainful home economics, office, technical, trade and industry. Total expenditures for vocational services are listed for the following: vocational guidance, evaluation, in-service education, surveys and studies, work experience education, and other ancillary services.

Indirect expenditures for administration and instruction are allowed on the basis of 24 percent of the total direct expenditures of these two categories.

By approximately January of 1971, a vocational education cost analysis study will be made which will yield program costs per ADA.

DETERMINATION OF EXCESS COSTS

Excess costs of separate programs and of the total district vocational education program are computed by California districts on their reports to the Division of Vocational Education. California defines excess costs very simply as those costs of a program above the State Foundation Program.

Total cost of a program includes the direct and indirect cost of administration and instruction plus capital outlay. Indirect costs of administration and instruction are computed at 24 percent of the direct costs.

Excess costs above the State Foundation Program serve as a criterion for determining the extent of participation by the local educational agency in the indicated entitlement for that agency. For example, an agency might have the following expenditures:

1.	Total Direct Expenditures	$156,679
2.	Indirect Expenditures (24% x 1)	37,602
3.	Total Current Expenditures	$194,281
4.	Total Capital Outlay	23,535
5.	Total Program Expenses	$217,816
6.	Less Foundation Program	-208,572
7.	Excess Costs Above Foundation Program	$ 32,307

This sample agency, or district, had an entitlement of $15,000 from Federal funds. Since the total excess costs exceed the $15,000, this district would be eligible for payment of its full entitlement if all other conditions listed in the State Plan were met. The remainder is paid by the local district.

Beginning in the 1969-70 fiscal year, a supportive record is being required to accompany each district's "Expenditure Summary." This form is entitled, "Schedule A, Analytical Statement of Program Expenditures Reported on Forms VE-2 and VE-3" (see Exhibit III). One "Schedule A" is required for each program service column reported in Forms VE-2 and VE-3. The purpose of "Schedule A" is aimed at increasing the accuracy of identifying excess costs. The directions for completing this form place the responsibility for accurate reporting on the district.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

The Division of Vocational Education computes each district's entitlement to receive Federal vocational funds by dividing the district's total weighted ADA by the state's total weighted ADA to produce a decimal factor which is then multiplied by the state's total funds to be distributed. This procedure expressed as a formula is:

$$\frac{\text{District weighted ADA}}{\text{State weighted ADA}} = \text{decimal entitlement factor}$$

$$(\text{decimal entitlement factor}) \times (\text{total state monies}) = \text{entitlement}$$

The local district, upon receipt of the above entitlement notice, submits to the Division of Vocational Education an application which includes a detailed budget, statement of compliance, and a local plan for vocational education.

The Division of Vocational Education then applies an equalization formula to the district's proposed budget to determine the required excess cost that the district must document. The application of the equalization formula is as follows:

$$\frac{\text{District assessed valuation per ADA}}{\text{State assessed valuation per ADA}} = \text{wealth factor}$$

$$\frac{\text{State average tax rate}}{\text{District eligibility tax rate}} = \text{effort factor}$$

$$\frac{\text{Wealth factor} + \text{effort factor}}{2} = \text{equalization factor}$$

$$(\text{district entitlement}) \times (\text{equalization factor}) = \text{district required excess cost}$$

Next, the actual excess cost for vocational education is computed by the Division of Vocational Education for every district (see section on Determination of Excess Costs).

Upon receipt of the district's final budget for the year, the Division compares the documented final excess cost of vocational education for the district with the district's Federal vocational education funds entitlement amount. If the district cannot document excess costs to equal or exceed the entitlement amount, the entitlement is reduced to equal the district's documented excess costs.

Before final transmittal of the Federal funds, the Division checks the district's application and plan for implicit evidence that the programs and services for which the funds are requested are based upon current and projected manpower needs and job opportunities. If this evidence is not provided, the district application may be disallowed.

Allocation of Federal vocational education funds to community colleges follows the same procedures as used for high schools as described above. However, to preserve an historical ratio of sharing Federal vocational funds, a regular community college ADA receives a weighting of 2.60 compared to a regular high school ADA weighting of 1.00. Because of the larger high school enrollment, if both ADA's were rated at 1.00, the community colleges would have suffered a large reduction in funds when California shifted from a project basis of distributing funds to an entitlement formula basis.

EXHIBIT III

State of California Vocational Education	Region Central	Code	County Staniposa	Code	Schedule A (12/69)
	District Lobo Unified School District			Code	

Schedule A
ANALYTICAL STATEMENT OF PROGRAM EXPENDITURES REPORTED ON FORMS VE-2 and 3

Agriculture Program Page 1 of 11 pages

Account Number	Computation	Expenditures Reported on Forms VE-2 & 3
112 See Ref. 20	Percent of time in administration of agriculture education program. 17% x $20,000 director's salary	$ 3,400
120 See Ref. 21	Percent of time devoted to agriculture education program. 17% x $6,000 secretary salary	1,020
192 See Ref. 22	Travel, office supplies, etc., prorated per time devoted to agriculture education program. 17% x $967	164
212 See Ref. 23	Assignment of 1 teacher 2 periods per day for supervision 2/5 FTE teacher's salary at $10,000	4,000
213 See Ref. 24	Fifteen class periods 1 FTE teacher's salary at $7,000 plus 20% salary differential for summer projects: $8,400 1 FTE teacher's salary at $8,000 plus 20% salary differential for summer projects: $9,600 3/5 FTE teacher's salary at $10,000 plus 20% salary differential for summer projects: $8,000	26,000
214 See Ref. 25	Prorated direct guidance service 1 counselor $10,000 salary x 75% direct guidance service to vocational education programs x agriculture education enrollment 31.7% of the total vocational education enrollment.	$ 2,379

(over)

Account Number	Computation	Expenditures Reported on Forms VE-2 & 3
220 See Ref. 26	Services rendered 70 hr. x $2.50/hr. clerical wages = $175 40 hr. x $2.00/hr. clerical wages = $ 80	255
230 See Ref. 27		none
290 See Ref. 28	Instructional materials $1,015 Travel $2,600 Rental of films and projector $ 40	3,655
var. See Ref. 29 and 30	Maintenance of equipment $ 45	45
1269 See Ref.31	Not necessary to itemize except that equipment costing $200 per unit or more should be reported on Schedule D	325
var. See Ref. 32	Site Acquisition: District participation on an a.d.a. basis in a county-wide effort to develop an area vocational education agriculture program.	20,000
Less 55	Foundation Program Guarantee 135.7 units of ADA x $488 foundation program guarantee =	66,222

56 Occupational Program According to Vocational Education and Occupation Bulletin OE-80061

Code Number	Title
01.0100	Agriculture Production
01.0300	Agriculture Mechanics
01.0500	Ornamental Horticulture
01.0700	Forestry (No enrollment this fiscal year)

For Departmental Use Only

R.S.____________

B.C.____________

U.C.____________

STATE OF CALIFORNIA **Vocational Education**	REGION	CODE	COUNTY	CODE	VE-2 (5-69)
	DISTRICT			CODE	

PROPOSED EXPENDITURES -- BUDGET SUMMARY -- PART B of the Vocational Education Amendments of 1968

School Year Ending 6/30/70 **Round to the closest dollar**

VOCATIONAL EDUCATION PROGRAM

Classes of Expenditures	Agriculture 01.	Distribution 04.	Health 07.	Home Economics (Gainful) 09.02	Office 14.	Public Service 15.	Technical 16.	Trade and Industry 17.	Other 00.	Total
ADMIN. of Vocational Education	$	$	$	$	$	$	$	$	$	$
112 Directors' Salary										
120 Classified Salaries										
192 Other Exp. of Director										
INSTRUCTION										
212 Supervisors' Salaries										
213 Teachers' Salaries										
214 Other Certificated Salaries										
220 Classified Salaries										
230 Textbooks										
290 Other Exp. of Instruction										
var. Miscellaneous Expenses										
TOTAL PROPOSED DIRECT EXPENSES										
Prop. Indirect Expenditures										
TOTAL PROP. CURRENT EXPENSES										
CAPITAL OUTLAY										
1269 Voc. Educ. Equipment										
var. Other Capital Outlay										
Total Proposed Program Expenses*										
Less: Foundation Prog. Guarantee										
EXCESS EXPENDITURES ABOVE FOUNDATION PROGRAM										
*Of Total Proposed Program Expen. Identify the Percentage for										
Defined Adult										
Disadvantaged										
Handicapped										

STATE OF CALIFORNIA Vocational Education	REGION	CODE	COUNTY	CODE	VE-3 (5-69)
	DISTRICT			CODE	

PROPOSED EXPENDITURES -- BUDGET SUMMARY -- PART B of the Vocational Education Amendments of 1968
Supplementary Schedule of Code 00 -- "OTHER" Fiscal Year Ending June 30, 1970 Round to the closest dollar

Classes of Expenditures	Voc. Guidance	Evaluation	In-Service Ed.	Surveys and Studies	Work Experience Education	Other Ancillary				Total (Other) 00.
ADMIN. of Vocational Education	$	$	$	$	$	$				$
112 Directors' Salary										
120 Classified Salaries										
192 Other Exp. of Director										
INSTRUCTION										
212 Supervisors' Salaries										
213 Teachers' Salaries										
214 Other Certificated Salaries										
220 Classified Salaries										
230 Textbooks										
290 Other Exp. of Instruction										
var. Miscellaneous Expenses										
TOTAL PROPOSED DIRECT EXPENSES										
Prop. Indirect Expenditures										
TOTAL PROP. CURRENT EXPENSES										
CAPITAL OUTLAY										
1269 Voc. Educ. Equipment										
var. Other Capital Outlay										
Total Proposed Program Expenses										
Less: Foundation Prog. Guarantee										
EXCESS EXPENDITURES ABOVE FOUNDATION PROGRAM										
*Of Total Proposed Program Expen. Identify the Percentage for										
Defined Adult										
Disadvantaged										
Handicapped										

COLORADO

GENERAL PROGRAM GOALS

Colorado's Office of Occupational Education has established the following student enrollment objectives for 1974. Percentage figures represent the proportions of various population elements expected to be enrolled by 1974 in at least one vocational education course.

1. 40 percent of secondary students;
2. 4 percent of the population, age 15-24 (in secondary facilities);
3. 5 percent secondary, 3 percent post-secondary, and 15 percent adults of the disadvantaged population;
4. .1 percent secondary, .1 percent post-secondary, and .1 percent adults of the handicapped population;
5. 3.5 percent of the population, age 16-64 (in adult vocational education).

In Colorado, projections for 1975, by program, could not be obtained for actual enrollments nor percentages of enrollment. Only the actual enrollment for 1969 could be obtained. Table A-3 shows the percentages of vocational education enrollment for 1967 and 1969 by program. Table A-4, however, shows, in addition to the 1967 and 1969 enrollments, the projections for 1975 by grade level.

COST ANALYSIS

Secondary Schools

In Colorado, the state's General Assembly has recently passed the "Colorado Vocational Act of 1970." This act provides a mechanism for providing state aid to vocational education programs in addition to that which the local school district would normally receive. Under this legislation, the Assembly requires the local districts to report the total costs of vocational education programs to the State Division of Occupational Education.

The total cost of the vocational program, as defined by the Act of 1970, is the sum of the costs of the following:

Instructional Costs:

Salaries, retirement and fringe benefits, paid to or on behalf of the following approved vocational education personnel, by local educational agencies, on the basis of time devoted to approved vocational education programs:

1. Vocational teachers
2. Vocational supervisors
3. Local vocational directors

Table A-3

Percent of Vocational Education Enrollment in Colorado by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975[a]		
	M	F	T	M	F	T	M	F	T
Agriculture	11.54	.00	4.62	8.82	.06	3.75	N.A.[b]	N.A.[b]	3.38
Distributive	12.18	8.57	10.01	14.73	8.52	11.13	N.A.[b]	N.A.[b]	11.98
Health	.00	2.36	1.41	.39	3.43	2.15	N.A.[b]	N.A.[b]	4.13
Home Economics (Gainful)	.00	2.36	1.41	.24	3.37	2.05	N.A.[b]	N.A.[b]	4.17
Home Economics (Useful)	4.81	58.03	36.71	6.68	53.46	33.76	N.A.[b]	N.A.[b]	30.33
Office	8.01	25.91	18.74	10.46	28.80	21.08	N.A.[b]	N.A.[b]	18.29
Technical	8.65	.64	3.85	10.25	.87	4.82	N.A.[b]	N.A.[b]	3.76
Trade & Industry	55.13	2.14	23.36	48.44	1.49	21.26	N.A.[b]	N.A.[b]	20.56
Special Programs	N.A.[b]	N.A.[b]	N.A.[b]	N.A.[b]	N.A.[b]	N.A.[b]	N.A.[b]	N.A.[b]	3.38

[a] Excludes Special Needs.

bData not available.

Table A-4

Percent of Vocational Education Enrollment in Colorado by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	2.24	7.49	5.39	2.12	7.69	5.34	2.45	8.59	6.05
Tenth	2.24	5.14	3.98	2.70	5.87	4.53	3.11	6.56	5.13
Eleventh	8.33	8.14	8.22	9.35	8.85	9.06	10.78	9.90	10.26
Twelfth	10.90	12.21	11.68	14.34	16.81	15.77	16.53	18.80	17.86
First Year College	11.22	7.28	8.86	13.68	7.33	10.00	11.58	6.02	8.32
Second Year College	4.49	.86	2.31	7.62	1.86	4.28	6.45	1.53	3.56
Adult	59.62	56.75	57.89	47.34	48.74	48.15	34.32	34.28	34.30
Special Needs	.96	2.14	1.67	2.85	2.84	2.85	14.78	14.31	14.50

4. Local vocational job development and placement directors

5. Vocational teacher aides and paraprofessionals

Official Travel:

Travel is allowed for the vocational personnel shown above, when required in the performance of their duties:

1. For supervision of students and teachers

2. For travel of teachers serving more than one school

3. For job development and student placement

Books and Supplies:

Vocational textbooks, workbooks and related reference books; supplies required for the vocational instructional program.

Equipment:

Provisions are made for the purchase, renting, or leasing of specialized vocational instructional equipment, but not for standard classroom furnishings classified as basic school furniture.

1. Cost of vocational instructional equipment approved for purchase by the State Board for use in vocational training programs:
    a. Costs include purchase, lease, or rental.
    b. Instructional equipment may include both inventorial and non-inventorial items, in accordance with state regulations.
    c. Required or necessary vocational equipment such as schools normally provide may be purchased for individual students' use.
2. Normal repairs and maintenance of instructional equipment may be included.

Vocational Student Transportation Costs:

The cost of transporting students from one school or attendance center to another in order to provide access to instruction in a regular planned and approved vocational program is allowed.

Contract Costs:

Costs for services provided to the local education agency by another educational agency or institution may include:

1. Prorated costs of providing educational instruction as outlined above.

2. Other costs, if deemed necessary and reasonable.

All contract costs must be reviewed and must receive prior approval by the State Board.

In compliance with the Act of 1970, the Division of Occupational Education created the reporting forms VE 115, VE 115A and VE 115B (see Exhibit IV). Each local district is required to complete two copies of VE 115 for each occupational area in which programs are provided. This form covers the cost categories identified by the Act. These costs are then summed to obtain a total Vocational-Occupational Program Cost. In Colorado, indirect costs are not included in the total program costs.

Post-Secondary Program

The Colorado Vocational Act of 1970 pertains only to the secondary schools. As a result, post-secondary institutions do not fall under the Act's mandates. The Division of Occupational Education, however, requires these institutions to report program costs. The Division uses Form VE 115, but requires post-secondary schools to report only the costs of equipment to be purchased and teachers' salaries. These two items, of course, do not reflect the total program cost.

DETERMINATION OF EXCESS COST

In Colorado, the excess cost of a vocational program per FTE student is the amount over the $460 per FTE student which the local district receives normally in equalization support. To determine this cost, the state requires each district to complete Form VE 115, on which are reported both the total program costs and the number of FTE students, by program. The reports go to the Division of Occupational Education. The Division divides the total program cost by the number of FTE students in the program, arriving at the cost per FTE student. The Division then subtracts from this figure $460, the amount of state equalization support, to determine the vocational education excess cost.

At present Colorado has no procedure for comparing the estimated costs with the actual program costs.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Federal Funds

Colorado's procedure for establishing priorities among local applications for added vocational education funds takes full account of the four basic criteria of the Federal assistance program.

1. Manpower Needs and Job Opportunities

The scale is based on the most current information available from the State Employment Service about unfilled jobs in the county or area served by the local district. The percent of unfilled jobs in that area is compared with the percentage of the state's total of unfilled jobs. The result is a numerical score applied to the district. The score is calculated as follows:

0 - 10% of State Total = 1
11% - 20% of State Total = 2
21% - 30% of State Total = 3
31% - 40% of State Total = 4
41% - 50% or more of State Total = 5

The local district's score is multiplied by the state's weighted number 20 to get a total for this criterion.

2. Vocational Education Needs

The scale is based on three factors: (1) percent of state's population; (2) percent of school dropouts; and (3) percent of graduating seniors who did not enter college. To score a district on these factors, the state established the following rating scale:

4% or less = 1
5% to 19% = 2
20% to 35% = 3
36% to 49% = 4
50% or more = 5

The local district's score is multiplied by the state's weighted number 35 to get a total.

3. Relative Ability to Pay

The state ranks districts on a 1 to 5 scale, related to an Adjusted Effort Factor, which is determined as follows:

A. Relative Ability to Pay $= \dfrac{\text{School district's assessed valuation per ADA}}{\text{State average assessed valuation per ADA}}$

B. Unadjusted Effort to Pay $= \dfrac{\text{District revenue per ADA from local sources}}{\text{State average revenue per ADA from local sources}}$

C. Adjusted Effort Factor $= \dfrac{\text{Unadjusted effort to pay factor}}{\text{Relative ability to pay factor}}$

The Adjusted Effort Factor indicates whether the district's effort to pay is greater or less than its ability to pay, as compared with the state average. When a local district rank has been established on the 1 to 5 scale, the score is multiplied by the state weighted number, 35, to obtain a total score for this criterion.

4. Excess Cost

Excess cost is determined by comparing local program costs with the statewide average for program operation. The districts are ranked on a 1 to 5 scale, and this score is multiplied by 10 to get a total score for this criterion.

In establishing the allocation priority of each district, the total scores for each of the four criteria are summed, and these figures are ranked. The Division of Occupational Education examines the rankings and makes allocations to the districts accordingly.

State Funds

The State of Colorado, by the Colorado Vocational Act of 1970, has established a financial foundation program for the state's vocational education programs. In order for local districts to become eligible for monies under this program, each district must show that its vocational course or courses meet the following standards:

1. Be designed to provide students with an entry level occupational skill.

2. Be of sufficient duration to provide entry level skills and related knowledge required by business and industry.

3. Have a technical advisory committee which functions at the state, regional, or local level, to assist school districts in planning and conducting their vocational education curricula.

4. Be conducted in facilities that are sufficiently well equipped to permit adequate training and education.

5. Meet an employment potential which may be found to exist by any survey by the state of economic opportunities.

These standards are not synonymous with the Federal criteria for allocation of funds, and Colorado is fearful that in the future, the Federal government may question the state's right to use its funds by the above standards as qualifying matching funds provided by the Federal program.

EXHIBIT IV

VOCATIONAL PROGRAMS, ACTIVITIES AND SERVICE

CURRENT AND PROJECTED PROGRAMS

FORM VE 115
Submit TWO copies

______________________ District No. ________ City ______________________ County ____________
(Name of local agency)

Occupational Area: ______________________
(See instructions)

(1) U.S.O.E. Program Code	Instructional Program, Activity or Service	(2) Level	Year	(3) No. of Programs	(4) Continuing	Expanding	New	(5) No. of Teachers	(6) Length of Program (in weeks)	(7) Estimated Enrollment (unduplicated count)	(8) Estimated Completions	(9) Cost of Equipment to be Purchased	(10) Teacher's Salary (Vocational time only)	(1 Books and Supplies
			1969-70											
			1970-71											
			1971-72											
			1972-73											
			1973-74											
			1974-75											
			1969-70											
			1970-71											
			1971-72											
			1972-73											
			1973-74											
			1974-75											
			1969-70											
			1970-71											
			1971-72											
			1972-73											
			1973-74											
			1974-75											

1 ' 115 5M 3-70

EXHIBIT IV

OCATIONAL PROGRAMS, ACTIVITIES AND SERVICES

CURRENT AND PROJECTED PROGRAMS

Page _____ of _____ Pages

_______________ County _______________ DATE: _______________

	(5)	(6)	(7)	(8)	(9)	(10)	SECONDARY SCHOOLS			(14)	(FOR STATE USE ONLY	
New	No. of Teachers	Length of Program (in weeks)	Estimated Enrollment (unduplicated count)	Estimated Completions	Cost of Equipment to be Purchased	Teacher's Salary (Vocational time only)	(11) Books and Supplies to be Purchased	(12) Student Transportation	(13) Contract Costs	Estimated Total Vocational Costs of Program	(15)	(16)

STATE BOARD FOR COMMUNITY COLLEGES AND OCCUPATIONAL EDUCATION

FORM VE 115–A
Submit TWO copies

207 State Services Building
Denver, Colorado 80203

DUE DATE: April 15

LOCAL PLAN FOR VOCATIONAL EDUCATION

Each local educational agency, to be eligible for vocational funds, must prepare and present to the State Board a plan of vocational educational programs, services and activities to meet the vocational needs of individuals within the community or area served by the educational agency.

This plan will include:

1. A current inventory and a five-year projection of continuing, expanded and/or new programs, services and activities related to vocational or technical training or retraining of persons in the agency's district or service area *(Form VE 115)*.

2. **Program Proposals**

   A program proposal *(Form VE 120)* must be on file with the State Board for each program. In addition, a supplementary proposal for these special programs will be included:

Consumer and Homemaking programs	Form VE 121
Exemplary and Innovative programs	Form VE 122
Special Cooperative programs	Form VE 123

3. Equipment/Materials applications, by program, for the succeeding year *(Form VE 101)*.

4. A report of any unusual situations or conditions which should be considered in the allocation of vocational funds to the local educational agency.

CERTIFICATION

The applicant designated below hereby submits this plan to provide instuctional programs, services and activities to meet the vocational needs of persons in this educational agency's geographic service area. Application is hereby made for vocational funds to assist in the implementation of this plan.

I HEREBY CERTIFY, to the best of my knowledge, that the information contained in this application is correct and that the programs, services and activities approved will be conducted in accordance with the Colorado State Plan for Vocational Education.

2. Program Proposals

A program proposal *(Form VE 120)* must be on file with the State Board for each program. In addition, a supplementary proposal for these special programs will be included:

Consumer and Homemaking programs	Form VE 121
Exemplary and Innovative programs	Form VE 122
Special Cooperative programs	Form VE 123

3. Equipment/Materials applications, by program, for the succeeding year *(Form VE 101)*.

4. A report of any unusual situations or conditions which should be considered in the allocation of vocational funds to the local educational agency.

CERTIFICATION

The applicant designated below hereby submits this plan to provide instructional programs, services and activities to meet the vocational needs of persons in this educational agency's geographic service area. Application is hereby made for vocational funds to assist in the implementation of this plan.

I HEREBY CERTIFY, to the best of my knowledge, that the information contained in this application is correct and that the programs, services and activities approved will be conducted in accordance with the Colorado State Plan for Vocational Education.

(Name of school)

(Dist. No.) (City) (County)

(Name and title of administrative officer of local educational agency)

(Name and title of person preparing plan)

(Signature of above)

(Signature of above)

Date signed:

FORM VE 115-B

STATE BOARD FOR COMMUNITY COLLEGES AND OCCUPATIONAL EDUCATION

207 State Services Building
Denver, Colorado 80203

INSTRUCTIONS FOR COMPLETING FORM VE 115 – VOCATIONAL PROGRAMS: ACTIVITIES AND SERVICES

Complete TWO copies of the VE 115 for each Occupational Area, i.e., Agricultural Education, Distributive Education, etc. Report present year information, if applicable, and develop a five-year projection of planned programs, activities and services.

OCCUPATIONAL AREAS

Regular

- Agricultural Education
- Distributive Education
- Health Occupational Education
- Consumer and Homemaking Education
- Occupational Home Economics Education
- Office Occupations Education
- Technical Education
- Trade and Industrial Education

Special

- Research
- Exemplary
- Special Cooperative Education
- Disadvantaged . . . . **"Disadvantaged persons" are those who have academic, socio-economic or other handicaps which prevent them from succeeding in the regular vocational education program.**
- Handicapped . . . . **"Handicapped persons" means persons who are mentally retarded, hard of hearing, deaf, speech-impaired, visually handicapped, emotionally disturbed, crippled, or otherwise health-impaired and, by reason of which, require specialized instruction or related services.**

- Vocational Guidance and Counseling

Administration

- Local Vocational Director or Supervisor

The following numbers correspond with the columns on FORM VE 115:

1. For preparatory programs, use U. S. Office of Education Occupational Code and Titles *(see attached listing -- FORM VE 152)*. Use a five-year projection block for each program. For Adult programs, block groups by occupational areas and report these in one projection block *(e.g., Trades & Industry--Instructional Program: Building Trades)*.

2. Indicate by appropriate letter code(s) the level of the program, i.e., S--Secondary; PS--Post Secondary; A--Adult, X--Special.

3. Report number of programs of this title in the district or agency.

4. Check appropriate column to indicate whether program is continuing, expanding, new.

5. Indicate number of teachers teaching in this instructional program.

6. Report total weeks planned for the instructional program during period July 1 -- June 30 of any year.

Handicapped. "Handicapped persons" means persons who are mentally retarded, hard of hearing, deaf, speech-impaired, visually handicapped, emotionally disturbed, crippled, or otherwise health-impaired and, by reason of which, require specialized instruction or related services.

Vocational Guidance and Counseling

Administration

Local Vocational Director or Supervisor

[illegible]

The following numbers correspond with the columns on FORM VE 115:

1. For preparatory programs, use U. S. Office of Education Occupational Code and Titles *(see attached listing--FORM VE 152)*. Use a five-year projection block for each program. For Adult programs, block groups by occupational areas and report these in one projection block *(e.g., Trades & Industry--Instructional Program: Building Trades)*.

2. Indicate by appropriate letter code(s) the level of the program, i.e., S--Secondary; PS--Post Secondary; A--Adult, X--Special.

3. Report number of programs of this title in the district or agency.

4. Check appropriate column to indicate whether program is continuing, expanding, new.

5. Indicate number of teachers teaching in this instructional program.

6. Report total **weeks** planned for the instructional program during period July 1 -- June 30 of any year.

7. **NOTE:** For Disadvantaged, Handicapped, Special Cooperative and Exemplary programs, estimate the number of secondary students from private, non-profit schools to be enrolled as being separate from public school enrollees *(e.g., 25.....public school and report them as 25/3.)*
/3.......private school

8. Estimate number of students expected to complete the program.

9. Show the **dollar amount** of equipment to be purchased for the program. Attach FORM VE 101 listing, for approval, equipment to be purchased.

10. Estimate vocational teacher salary costs for the program, activity or service, calculating **salary for vocational time only**.

NOTE: Columns 11, 12 and 13 are for SECONDARY VOCATIONAL PROGRAMS ONLY.

11. Estimate costs of books and supplies.

12. Estimate cost of transporting students from one school to another for vocational programs.

13. Estimate costs of contracting with other schools or agencies for vocational programs. *(Applies only to schools making payments to others for vocational instructional services.)*

14. List **total** estimated costs for the vocational program *(Post Secondary schools........total columns 9 and 10; Secondary schools......total columns 9 through 13)*.

115-B – 2M – 3-70

FLORIDA

GENERAL PROGRAM GOALS

Florida's State Plan has established the following student enrollment objectives for 1974. Figures show the proportions of various elements of the population expected to be enrolled in at least one vocational education course.

1. 19.5 percent of secondary students;
2. 4.3 percent of the labor force (in post-secondary facilities);
3. 7 percent of secondary disadvantaged;
4. 1.5 percent of secondary handicapped;
5. 68 percent of the population, 18 years of age or older (in adult vocational education).

In Florida, projections of actual enrollments by program and grade level could not be obtained for 1975. Although the State Plan made projections for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of enrollments by program and grade level could be obtained. Tables A-5 and A-6 show the estimated changes of enrollment in vocational education programs and grade levels that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

At present the State of Florida has no procedure by which to identify the total cost of every vocational course offered in local school districts. However, at the request of the State Legislature, the Office of Vocational and Technical Education is beginning to formulate a procedure that will achieve this objective.

DETERMINATION OF EXCESS COST

The State Plan states that in examining the costs of vocational programs, services, and activities provided by local educational agencies which are in excess of the costs normally attributed to these agencies, the Florida State Board considers the following:

1. Salaries and wages must be consistent with wage and salary schedules of the local education agency for comparable qualifications and periods of employment; all salaries and wages that are not comparable must be justified by demonstrable cause.
2. Wage rates for construction projects must be based upon a wage determination study conducted by the U.S. Department of Labor in the district; the rate paid must not exceed the going rate, except for demonstrated cause.

Table A-5

Percent of Vocational Education Enrollment in Florida by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	18.80	.19	6.27	14.85	.11	5.37	15.90	.12	5.76
Distributive	11.90	5.73	7.74	17.44	8.33	11.58	17.41	8.34	11.59
Health	.30	2.52	1.80	.50	2.65	1.88	.57	3.00	2.13
Home Economics (Gainful & Useful)	4.70	54.44	38.19	4.75	58.73	39.46	4.69	58.24	39.09
Office	9.40	31.88	24.53	13.22	25.95	21.41	13.27	26.14	21.53
Technical	13.90	1.16	5.33	11.38	1.01	4.71	13.03	1.16	5.41
Trade & Industry	41.00	4.17	16.20	37.86	3.23	15.58	35.14	3.00	14.50

Table A-6

Percent of Vocational Education Enrollment in Florida by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	8.70	18.34	15.19	7.12	16.81	13.35	6.62	16.43	12.81
Tenth	5.10	6.36	5.95	4.71	6.65	5.95	4.37	6.49	5.71
Eleventh	8.00	6.84	7.22	7.01	7.48	7.31	6.51	7.31	7.02
Twelfth	12.40	13.15	12.90	8.92	10.89	10.18	8.28	10.64	9.77
First Year College	7.70	3.20	4.67	19.96	10.43	13.83	21.07	11.58	15.08
Second Year College	2.70	1.75	2.06	12.11	4.01	6.90	12.79	4.45	7.52
Adult	54.60	50.32	51.72	37.86	41.76	40.37	25.86	30.00	28.47
Special Needs	.80	.05	.29	2.31	1.99	2.10	14.50	13.10	13.62

3. Expenditures for transportation that are confined to extraordinary costs above those normally assumed by the local educational agency are given consideration only if declared by the local education agency to be essential in order that a student may progress satisfactorily in a vocational education program.

4. Expenditures for maintenance that are confined to extraordinary costs above those normally assumed by the local educational agency are considered only if their extraordinary character can be demonstrated.

5. Equipment and supplies must be obtained through legal bidding and purchasing procedures; expenditures to replace items lost through theft or destruction are considered excessive costs.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

In compliance with Federal regulations, the State of Florida has established a mechanism, using the required criteria, to establish priorities among districts for allocation of funds (first rating scale) and to establish priorities among projects in a local educational agency (second rating scale).

Rating Scale One

This rating scale is used to establish priority for inviting projects for funding from the respective local educational agencies and in recommending approval for funding after they are submitted.

The items on the rating scale are weighted by the Divisional Coordinating Committee in terms of the relative importance which the Committee attaches to them. Ratings on a 1 (low) to 5 (high) scale are established annually, based upon state totals, deviations from state averages, and comparisons with programs of other local education agencies, as appropriate. The weighted scale is applied against the total vocational and technical education program for which a local educational agency is responsible. Application of the scale to the data provided results in a single composite index number for each local educational agency. This determines its relative position for funding consideration with respect to all local educational agencies.

Rating Scale for Determining the Relative Priority for Inviting Local Educational Agencies to Submit Projects for Funding

Vocational Education Services to Population of District

(1) Secondary School Students (Grades 7-12)

a. Number and percent enrolled in vocational education No.____ Percent______

b. Number and percent enrolled, by unduplicated count No.____ Percent______

c. Number and percent enrolled for gainful employment No.____ Percent______

d. Number and percent enrolled for gainful employment, by unduplicated count No.____ Percent______

(2) Post-Secondary Students (Full-time Preparatory Programs for Persons Outside of High School)

a. Number enrolled in vocational programs No.____

b. Number enrolled, by unduplicated count No.____

c. Percent of district labor force represented by unduplicated count Percent______

(3) Adults (Programs for Persons Needing Training or Retraining)

a. Number enrolled in vocational programs No.____

b. Number enrolled, by unduplicated count No.____

c. Percent of district labor force served by unduplicated count Percent______

(4) Disadvantaged Persons (Youth and Adults)

a. Number and percent of ESEA Title I students in grades 7-12 enrolled for gainful employment, by unduplicated count No.____ Percent______

b. Number and percent of heads of households in district with annual income of less than $3000 enrolled for gainful employment, by unduplicated count No.____ Percent______

c. Number of unemployed, out-of-school youth, by unduplicated count, enrolled for gainful employment No.____

(5) Handicapped Persons (Youth and Adults)

a. Number in grades 7-12, by unduplicated count, enrolled in occupational education programs No.____

b. Number of out-of-school youth and adults, by unduplicated count, enrolled in occupational education programs No.____

Placement Information on Gainful Employment Programs of the District

(1) Total number enrolled, by unduplicated count No.______

a. Number completing program No.______

b. Number leaving before completion No.______

(2) Disposition of enrollees, by unduplicated count:

Enrollee Classification	Entered Occup. for Which Trained	Entered Closely Related Occup.	Entered Military Service	Cont'd. in School	Other Employment	Unknown
Secondary						
a. Completing						
b. Leaving						
Post-Secondary						
a. Completing						
b. Leaving						
Adults						
a. Completing						
b. Leaving						
Disadvantaged						
a. Completing						
b. Leaving						
Handicapped						
a. Completing						
b. Leaving						

TO BE COMPLETED BY STATE OFFICE:

1. Total population of the district ____________

2. Total labor force of the district ____________

3. Unemployment rate in the district ____________

4. Number of unfilled jobs in the district or multi-district area ____________

5. Wealth per student from minimum millage levy $____________

6. Millage levy for education $____________

Rating Scale Two

Each project submitted for funding by a local educational agency upon recommendation by the appropriate area coordinating committee, the Divisional Coordinating Committee, and invitation from the Director for Vocational, Technical and Adult Education is screened in terms of the rating scale. The items are weighted by the Divisional Coordinating Committee in terms of their relative importance. Ratings on a 1 (low) to 5 (high) scale are established annually, based upon comparisons of comparable data and information with other projects submitted by a given local educational agency. The weighted scale is applied to the data and information provided, resulting in a single composite index number for each project which determines its relative position for funding consideration in comparison to all other projects submitted by that local educational agency.

Rating Scale for Determining the Relative Funding Priority of Gainful Employment Projects Invited from a Local Educational Agency

---

1. Employment service employment demand rating(s) for the occupation(s) for which funding support is requested for instructional programs, services, or activities.

   Rating________________

2. Employment demand rating(s) for the occupation(s) for which funding support is requested for instructional programs, services, or activities as obtained from another statewide survey.

   Rating________________

3. Persons served (unduplicated count) who are enrolled (or expected to be enrolled) in the vocational education program for which this funding support is requested.

	Number
a. ESEA Title I students (grades 7-12)	a. ________
b. Handicapped students (grades 7-12)	b. ________
c. Other students (grades 7-12)	c. ________
d. Post-secondary students	d. ________
e. Adults needing training or retraining	e. ________
f. Out-of-school unemployed youth	f. ________
g. Heads of households with annual income of less than $3000	g. ________
h. Handicapped out-of-school youth and handicapped adults	h. ________

4. Is the school in which this project will be conducted located in, or immediately adjacent to, an economically depressed or high unemployment area designated in the Cooperative Area Manpower Systems report?

   Yes________ No________

5. Unusual Cost Factors.

   a. If funds are requested in the project for salaries and/or wages, are the funds requested consistent with district wage and salary rates for comparable qualifications and responsibilities?
   Yes______ No______
   If "No," explain: ________________________________
   ____
   ____

b. Are funds requested in the project for maintenance? Yes______
No______ If "Yes," explain: ______________________________
____
____

c. Are funds requested in the project for student transportation?
Yes______ No______
If "Yes," explain: ______________________________
____
____

d. If funds are requested in the project for equipment, has comparable equipment been purchased for this program within the past five (5) Years? Yes______ No______
If "Yes," explain: ______________________________
____
____

6. If this is an ongoing program, provide the following data on disposition of enrollees in the program last year, by unduplicated count:

Enrollee Classification	Entered Occup. for Which Trained	Entered Closely Related Occup.	Entered Military Service	Cont'd. School	Other Employment	Unknown
Secondary						
a. Completing						
b. Leaving						
Post-Secondary						
a. Completing						
b. Leaving						
Adults						
a. Completing						
b. Leaving						
Disadvantaged						
a. Completing						
b. Leaving						
Handicapped						
a. Completing						
b. Leaving						

If the amount of Federal funds requested for an ongoing program project cannot be allocated, the request is scaled down on the basis of (1) the number of students served as related to the projected cost, (2) disposition of enrollees of the past year, and (3) employment demand in the occupation. If a new program cannot be funded in the amount requested, it is supported sufficiently to make it minimally operational.

ILLINOIS

GENERAL PROGRAM GOALS

The ultimate goal of vocational education, as set forth in the Illinois State Plan, is to provide an adequately trained manpower force. In order to attain this end, by serving the needs of all potential students, Illinois spells out the following student enrollment objectives for 1975 (percentage figures show the proportions of various elements of the population expected to be enrolled in at least one vocational education course):

1. 50 percent of urban and 35 percent of rural secondary school students.
2. 30 percent of secondary students (in post-secondary vocational education).
3. 6 percent urban and 5 percent of the rural population, age 15-24 (in post-secondary facilities).
4. 50 percent of total enrollments in [illegible] year post-secondary institutions.
5. 15 percent of secondary, 10 percent of post-secondary and 30 percent of adults of the disadvantaged population.
6. 25 percent of secondary, 10 percent of post-secondary and 20 percent of adults of the handicapped population.
7. 3.5 percent of the population, age 16-64 (in adult vocational education).

In the Illinois long-range program plan provisions, projected enrollments in vocational education are made as follows for 1975:

Secondary - 600,000
Post-secondary - 125,000
Adult - 34,000

The Illinois State Plan also attempts to distribute the projected enrollment in special programs by grade level for the same year; i.e., disadvantaged, handicapped, cooperative, group guidance, work study, consumer and homemaker, distributed over secondary, post-secondary and adult levels. No attempt is made, however, to distribute enrollments by program and grade level.

Table A-7 compares the percentage distribution of enrollment by program for the fiscal years 1967, 1969, and estimated distributions for 1975. The distribution shown for 1975 is based on two factors: (1) the trend as indicated by the changes from 1967 to 1969, and (2) the professional opinions of personnel in the Illinois State Office of Vocational and Technical Education. As the projections are rough extrapolations, the distributions are only approximate.

Table A-8 shows a distribution of percent enrollment in Illinois by grade level and sex for 1967, 1969, and 1975.

Table A-7

Percent of Vocational Education Enrollment in Illinois by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	31.48	.10	13.52	22.52	.35	10.24	20.00	1.00	9.00
Distributive	3.37	2.52	2.88	7.47	3.19	5.10	9.00	3.00	6.00
Health	.26	3.29	1.99	.70	5.30	3.24	1.00	6.00	4.00
Home Economics (Gainful)	.52	1.65	1.05	3.69*	52.70*	30.83*	4.00*	50.00*	29.00*
Home Economics (Useful)	2.33	58.76	34.63						
Office	8.81	29.33	20.55	12.66	33.11	23.99	15.00	34.00	24.00
Technical	6.09	.19	2.71	7.76	.34	3.65	9.00	1.00	4.00
Trade & Industry	47.54	4.16	22.71	45.20	5.01	22.95	42.00	5.00	24.00

*Includes both gainful and useful home economics.

Table A-8

Percent of Vocational Education Enrollment in Illinois by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	5.96	16.84	12.19	5.50	16.85	11.92	5.56	16.30	11.76
Tenth	5.83	12.68	9.75	6.21	14.10	10.68	6.28	13.64	10.52
Eleventh	12.69	17.23	15.29	13.83	18.15	16.28	13.98	17.57	16.05
Twelfth	18.13	29.72	24.76	17.84	30.16	24.81	18.03	29.19	24.46
First Year College	4.53	2.61	3.43	11.46	4.78	7.68	13.98	5.59	9.14
Second Year College	1.56	.39	.89	4.64	2.30	3.31	5.66	2.68	3.94
Adult	41.71	16.94	27.53	30.23	8.99	18.21	6.05	1.73	3.56
Special Needs	9.59	3.29	5.98	10.30	4.66	7.11	30.46	13.30	20.57

COST ANALYSIS

Secondary Level

The Illinois Division of Vocational and Technical Education to date has not completed a procedure for program cost analysis in vocational education. Officials in the Division indicate that the problem is under study and that consideration is being given to the possibility of adapting the cost analysis techniques used by the Division of Illinois Junior Colleges.

Post-Secondary Level

In a June, 1969, publication of the Illinois Junior College Board and the Illinois Board of Higher Education, entitled, "Unit Cost Study Manual for Illinois Public Junior Colleges," there is outlined a procedure for cost analysis at the post-secondary level. Data would be collected by standardized forms and conceived to elicit the following information:

1. Credit hour data

2. Course data

   a. Function
      1) Instruction
      2) Organized research
      3) Public service

   b. Sub-function
      1) Baccalaureate
      2) Occupational
      3) General studies
      4) Adult and continuing

   c. Instructional area (e.g., mathematical sciences, biological sciences, etc.)

   d. Discipline (e.g., economics, geography, etc.)

3. Faculty record data

   a. Name of department
   b. Courses and section taught
   c. Total salary
   d. Academic classification and/or administrative title
   e. FTE faculty member
   f. Other data

In the Illinois Plan, each junior college district is responsible for: (1) collecting necessary data, (2) coding the data for computer processing, (3) analyzing the data locally by using a prepared computer program provided by the State Board, and (4) submitting duplicate copies of all materials to the State Board. In turn, the State Board organizes and prints all the junior college reports and distributes these to the local districts.

By this method, published reports on the entire operations of the junior college system are to be available for planning, budgeting, and evaluation by the local districts about one month after the end of the fiscal year.

The "Unit Cost Study Manual . . . " describes the final report as consisting of the following two schedules:

I. Assigned expenditures

  A. Direct salaries
  B. Indirect salaries
  C. Departmental research salaries
  D. Departmental administrative salaries
  E. Other department support expenditures

II. Allocated expenditures

  A. Total non-administrative components

    1. Indirect instruction
    2. Learning resource center
    3. Student personnel services
    4. Auxiliary enterprises
    5. Non-instruction

  B. Total administrative components

    1. Central administration general expenses
    2. Central administration
    3. Division administration
    4. Operation and maintenance of plant expenditures

In order to preserve uniformity in recording expenditures and classifying budget items, the Illinois Board provides each district with a Uniform Accounting Manual.

By the kinds of analyses possible in the Illinois system, these three cost factors, among others, are obtainable: (1) the cost per credit hour, (2) cost per FTE faculty member, and (3) cost per FTE student, by course, program, department, institution, and the Illinois Junior College System.

DETERMINATION OF EXCESS COST

As the above described procedures are not yet in use, excess cost cannot be determined in Illinois by computation. However, in the 1969 State Plan, provision for determining excess cost is made as follows:

> . . . consideration shall be given to excess cost accruing to local educational agencies due to excessive construction costs, excessive cost of equipment, excessive instructional costs and/or costs for supplying special services as detailed in the local application.

Under the Illinois Plan, the local education agency is responsible for demonstrating the extent of excess cost in its application for state reimbursement. According to the degree of excess cost shown in the application, a Plus Weighting Factor, equivalent to 40 percent times the number of approved reimbursable units, is assigned to criteria labeled "High-cost-low-incidence." By this means, reimbursement for excess cost is incorporated into the allocation formula and is accounted for along with six other factors in the Illinois allocation system.

Allocation of Vocational Education Funds

In Illinois, state reimbursement to local districts for vocational education program costs is based on a basic claim for the number of students on appropriate credit hours, units of credit, contact hours or students enrolled in programs approved for participation in State and Federal funding. Basic financial assistance depends upon the number of student units times the number of dollars for each unit of classification. Stated as a formula:

$BFA = N_iX$
where BFA = Basic financial assistance
N_i = Number of student units at elementary, secondary, post-secondary or adult level
X = Number of dollars for each unit of that classification.

The priority for funding and consideration of mandated Federal criteria is incorporated into the calculation of N_i in the above formula. Included in the priority calculations are the following Weighted Plus Factors:

1. Relative ability to pay--programs offered by agencies in economically depressed areas.

2. Programs for disadvantaged--specifically designed for disadvantaged students.

3. Organization structures serving special groups--programs involving research, professional and curriculum development, or exemplary activities.

4. Initial programs--newly implemented programs involving high set-up costs.

5. High-cost: low-incidence--programs operated at unusually high costs offered to low enrollment classes.

6. Programs for handicapped--specifically operated for handicapped students.

In the 1969-70 schedule for Weighted Plus Factors, the High-cost: Low-incidence factor, and the handicapped factor received a weighting of 40 percent times the number of student units. All other factors, when applicable to the local district application, received a plus weighting of 30 percent. The Relative Ability to Pay factor is also determined by a schedule which lists districts in terms of equalized assessed valuation per number of students enrolled in the district.

The total dollars funded to the local district for regular vocational education programs is the sum total of the basic and plus factors times the assigned dollar value for that type of unit.

MICHIGAN

GENERAL PROGRAM GOALS

In Michigan, the Superintendent of Public Instruction and the Director of the Division of Vocational Education have specified five general goals for the state's vocational education program:

1. To guarantee that no student in high school in the State of Michigan will graduate without learning a skill usable in gainful employment, unless he is pursuing a liberal arts course leading to post-secondary education. (But all academically-oriented students are urged to gain some exposure to programs of skill acquisition);
2. To provide every student in the state with an introduction to the world of work and to provide in all schools courses of study leading to this end;
3. To survey continually the manpower needs of the state by geographic regions, and to make recommendations from time to time as to the appropriate educational agencies and means of preparation of personnel to meet these needs;
4. To be responsible for the maintenance of satisfactory records of the competence and productiveness of private trade schools, educational corporations, and programs for veterans, in accordance with Federal and state statutes;
5. To provide programs of skill-upgrading and new skill development, in order to encourage employed, underemployed and unemployed persons to improve their economic and social well being.

To attain these goals, Michigan's Division of Vocational Education has established student enrollment objectives for 1975 in the following proportions of various population elements expected to be enrolled in at least one vocational education course:

1. 45 percent of secondary school students;
2. 36 percent of post-secondary students (2-year);
3. 6.1 percent of the population, age 20-24 (in post-secondary facilities);
4. 40 percent secondary, 6.4 percent post-secondary, and 9.3 percent adults of the disadvantaged population;
5. 2.8 percent secondary, 2.0 percent post-secondary, and .2 percent adults of the handicapped population;
6. 3.1 percent of the population, age 20-65 (in adult vocational education).

The only available enrollment figures from Michigan were for the year 1967. It was impossible, therefore, to make any enrollment projections for 1975 by program or grade level.

Table A-9

Percent of Vocational Education Enrollment in Michigan by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	10.36	2.18	5.08	9.21	.36	4.60	N.A.*	N.A.*	4.00
Distributive	20.89	7.85	14.09	17.69	7.53	12.39	N.A.*	N.A.*	15.00
Health	.16	3.27	1.78	.23	3.67	2.02	N.A.*	N.A.*	N.A.*
Home Economics (Gainful and Useful)	4.20	54.28	30.30	7.05	52.03	30.50	N.A.*	N.A.*	37.00
Office	7.04	30.31	19.17	5.80	31.05	18.96	N.A.*	N.A.*	20.00
Technical	6.57	.00	3.14	5.09	.08	2.48	N.A.*	N.A.*	N.A.*
Trade & Industry	50.87	3.92	26.40	54.94	5.28	29.05	N.A.*	N.A.*	26.00

*Data not available.

Table A-10

Percent of Vocational Education Enrollment in Michigan by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	3.01	14.61	9.05	3.21	13.66	8.66	1.73	11.30	5.71
Tenth	3.48	10.54	7.16	4.95	11.67	8.45	2.67	9.65	5.57
Eleventh	8.15	18.10	13.33	10.04	19.91	15.18	5.42	16.47	10.01
Twelfth	15.74	28.71	22.50	16.17	28.13	22.41	15.32	14.00	14.77
First Year College	8.31	5.74	6.97	6.59	3.93	5.20	8.23	7.52	7.94
Second Year College	3.96	2.25	3.07	3.39	1.49	2.40	4.23	2.85	3.66
Adult	57.20	20.06	37.84	55.27	21.04	37.42	48.43	28.27	40.05
Special Needs	.16	.00	.08	.38	.18	.28	13.97	9.94	12.29

COST ANALYSIS

Michigan's Division of Vocational Education has initiated studies of its vocational program cost. At present, the state provides 1.6 million dollars a year for vocational education. The state legislature has said that if the Division wants this allocation increased, it will have to prove that vocational education costs more than the standard elementary or secondary schools' programs.

Confronted by this demand, the Division arranged for a preliminary study of the costs per student-hour of various vocational education programs. This study concentrated on: (1) a high school with a comprehensive vocational program; (2) a community college; (3) an area vocational center; and (4) an MDTA program. The courses examined were machine shop, auto body, auto shop, printing, electronics, building trades, welding, drafting, agriculture, office machines, stenography, clerk-typist, typing, retailing, bookkeeping, food service, health occupations, child care, cosmetology, and data processing. The cost of each of these courses was determined by using the following expenditure classification system:

- I. Instruction
    - A. Salary
        - 1. Principals
        - 2. Teachers
        - 3. Substitutes
        - 4. Guidance
        - 5. Secretarial
    - B. Supplies - teaching
    - C. Library books
    - D. Library periodicals
    - E. Office supplies
    - F. Rental of equipment
    - G. Miscellaneous
    - H. Mileage, travel expenses
    - I. Printing and publishing
- II. Operation of Plant
    - A. Custodian's salary
    - B. Heating
    - C. Utilities
    - D. Custodial supplies
- III. Maintenance
    - A. Contracted services - building and equipment
- IV. Fixed charges
    - A. Employees' service cost
    - B. Workmen's compensation
    - C. Employee insurance
    - D. Building rental
    - E. Liability insurance

(IV, cont.)

- F. Loan interest
- G. Property insurance

V. Amortization

- A. Building
- B. Equipment

As a result of this study, the Division of Vocational Education devised Form 40-14 (Exhibit V), which enables each local educational agency in the state to report the total direct cost of the agency's vocational program. This form requires identification of the following costs:

I. Instructional services

- A. Instructional salaries only
- B. Instructional supplies
- C. Rental of instructional equipment
- D. Local vocational education directors
- E. Guidance and counseling salaries (area programs only)
- F. Local vocational education supervisors
- G. Professional personnel travel

II. Fixed charges

- A. Rental - non-public space
- B. Employer share of employee benefits
- C. Other fixed direct charges

III. Equipment maintenance and repair

- A. Repair and servicing of equipment
- B. Other maintenance and repairs

IV. Other direct costs

- A. Tuition costs
- B. Transportation services (area programs only)
- C. Other miscellaneous costs

V. Deduct tuition received

VI. Capital purchases

- A. Initial purchase of vocational instructional equipment
- B. Minor remodeling of school plant
- C. Other capital expenditures

VII. Grand total

This form is being used for reports by both secondary and post-secondary schools, and has recently been sent to all districts. Budgetary program cost data will be available by October 1, 1970; actual cost data will be available in June, 1971.

DETERMINATION OF EXCESS COST

The Michigan Division of Vocational Education defines excess cost as "the average cost of the vocational program minus the average state operating cost per student."

In Michigan's State Plan for Vocational Education, local districts' excess costs are defined by the following factors:

1. Higher construction costs incurred by local educational agencies because of variations in price and wage levels.
2. Higher instructional cost per student because of a lower than average teacher-pupil ratio.
3. Salary costs incurred by local educational agencies which exceed the state averages.
4. Higher than average transportation services per student.
5. Higher than average plant maintenance costs per student.
6. A local tax effort which is equal to or greater than the average local tax effort in the state for all programs, services, and activities.

The factor concerned with higher construction costs, being impossible to ascertain accurately, is not usable within the State Plan.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Following Federal guidelines, the State of Michigan has developed a mechanism for establishing priorities among local school districts for the allocation of added funds. Michigan's system is keyed to the four basic Federal criteria, each of which is expanded by addition of subcriteria especially applicable to Michigan. The number of subcriteria is 19.

The Division of Vocational Education analyzes each district's annual report, and certain other data, with reference to the subcriteria. If, upon analysis, the district is seen to conform to the demands of the subcriteria, the district receives one point. This procedure is carried through for each of the subcriteria, and finally the district's points are totaled. On this basis, the districts are ranked in order of eligibility to receive funds.

The Division then establishes a base amount for each district, according to the amount of Federal money available. In addition, depending on its rank, the district will receive 3 percent, 6 percent, or 9 percent more than the amount of the base allocation.

EXHIBIT V

VE-4014
3/76

☐ SECONDARY
☐ POST SECONDARY
(COL. 19)

Michigan Department of Education
DIVISION OF VOCATIONAL EDUCATION
Box 928 Lansing, Michigan 48904

DIRECT COST OF VOCATIONAL EDUCATION PROGRAMS

EDUCATIONAL AGENCY	Legal Name	District Code No. (1-9)	Telephone – Area Code/Local No.
	Address	City	Zip Code

INSTRUCTIONS: Complete each item in detail. Return the BLUE copy with the ANNUAL PLAN by October 1, to the STATE address indicated above.

☐ BUDGET ESTIMATE ☐ ACTUAL COST ☐ APPROVED AMOUNT		AMOUNT BUDGETED OR EXPENDED (TO NEAREST DOLLAR)	(For State Use Only) AMOUNT APPROVED
1. INSTRUCTIONAL SERVICES			
A. Instructional salaries only (SEE PAGE 2)	12 - (13-18)		
B. Instructional supplies	(19-24)		
C. Rental of instructional equipment	(25-30)		
D. Local Vocational Education Directors	(31-36)		
E. Guidance and counseling salaries (AREA PROGRAMS ONLY)	(37-42)		
F. Local Vocational Education Supervisors	(43-48)		
G. Professional Personnel Travel	(49-54)		
2. FIXED CHARGES			
A. Rental of nonpublic space	(55-60)		
B. Employer share of employee benefits	(61-66)		
C. Other fixed direct charges	(67-72)		
3. EQUIPMENT MAINTENANCE AND REPAIR			
A. Repair and servicing of equipment	12 C (13-18)		
B. Other maintenance and repairs	(19-24)		
4. OTHER DIRECT COSTS			
A. Tuition costs	(25-30)		
B. Transportation services (AREA PROGRAMS ONLY)	(31-36)		
C. Other miscellaneous costs (ATTACH A SCHEDULE)	(37-42)		
5. DEDUCT-TUITION RECEIVED	(43-48)	–	
6. CAPITAL PURCHASE			
A. Initial purchase of Vocational Instructional Equipment	(49-54)		
B. Minor remodeling of school plant	(55-60)		
C. Other capital expenditures	(61-66)		
7. GRAND TOTAL			

CERTIFICATION

I certify that the information submitted on this application is true and correct to the best of my knowledge.

Date Authorized Official (Signature)

Contact Person (Signature)

VE – 4014
(PAGE 2)

DISTRICT CODE NO. 1–9

(CHECK ONE)
☐ 1 SECONDARY
☐ 2 POST SECONDARY
(COL. 10)

(CHECK ONE)
☐ 1 BUDGET ESTIMATE ☐ 2 ACTUAL COST ☐ 3 APPROVED AMOUNT
(COL. 11)

SUMMARY OF INSTRUCTIONAL SALARIES, ITEM IA, PAGE I.

ACTIVITY		TOTAL AMOUNT UPON WHICH REIMBURSEM'T IS REQUESTED	DISTRIBUTIVE	TRADE AND IND	HOME EC	HOME EC. WAGE EARNING	OFFICE	HEALTH	AGRICULTURE	APPROVED AMOUNT OF AID PUNCH FOR 3 ONLY
CARD COLUMNS	12	13 18	19 24	25 30	31 36	37 42	43 48	49 54	55 60	61 66
Preparatory	1									
Adult	2									
Cooperative (Plan B)	3									
Cooperative (Plan G)	4									
Disadvantaged	5									
Handicapped	6									
TOTAL										

MINNESOTA

GENERAL PROGRAM GOALS

Recognizing that changing manpower needs have made many vocational training programs obsolete, Minnesota has changed the focus of these programs so that the emphasis now is on programs designed to familiarize students with the world of work ahead of them and with the various occupations that will be available to them.

The Minnesota State Plan has established the following student enrollment goals for 1974. Figures show the proportions of various population elements expected to be enrolled in at least one vocational education course.

1. 19 percent of secondary students;
2. 19.7 percent of post-secondary students;
3. 7.5 percent of the labor force (in adult vocational education).

In Minnesota, projections of actual enrollments by program and grade level could not be obtained for 1975. Although projections were made for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of student enrollment by program and grade level could be obtained. Tables a-11 and A-12 show the estimated changes of enrollment that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

Secondary Level

At present the secondary financial reporting system in Minnesota does not provide for a break-out of costs of vocational education at the state level. Minnesota's "Vocational-Technical Annual Report for Reimbursement," Form VE-2 (see Exhibit VI), provides data for two basic purposes:

1. To determine district vocational reimbursement from Part B Federal funds.
2. To provide the raw data for compiling the USOE reports on vocational education program expenditures and enrollments.

This form lists information on each subject taught, its time, its enrollment, the instructor, and his salary. No other information is required regarding direct or indirect costs of programs.

A second form, F 50-1 (see Exhibit VII), entitled, "Vocational-Technical Agreement for Reimbursement," reflects Minnesota's secondary reimbursement policy of requiring the district to certify that all instructional supplies, equipment, buildings, and materials furnished by the district have been approved by the State Board for Vocational Education.

Table A-11

Percent of Vocational Education Enrollment in Minnesota by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	36.43	N.A.*	19.14	29.07	1.42	14.75	20.00	2.00	10.00
Distributive	6.03	4.69	5.41	7.59	5.15	6.33	9.00	6.00	7.00
Health	N.A.*	1.18	.58	.05	1.74	.92	1.00	2.00	2.00
Home Economics (Gainful)	.13	.14	.14	1.00	1.16	1.08	2.00	2.00	2.00
Home Economics (Useful)	1.36	68.87	33.37	3.49	62.68	34.15	5.00	55.00	34.00
Office	3.95	22.87	12.92	4.50	26.42	15.86	6.00	30.00	17.00
Technical	10.30	.30	5.55	7.97	.11	3.90	7.00	1.00	4.00
Trade & Industry	41.80	1.95	22.89	46.33	1.32	23.01	50.00	2.00	24.00

*Data not available.

Table A-12

Percent of Vocational Education Enrollment in Minnesota by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	5.78	14.98	10.12	5.38	15.28	10.51	3.91	12.61	8.15
Tenth	5.23	8.56	6.79	4.96	6.72	5.87	3.61	5.55	4.55
Eleventh	6.19	7.95	7.01	6.80	10.90	8.93	4.94	9.00	6.92
Twelfth	8.12	21.87	14.60	8.30	25.10	17.01	6.03	20.72	13.18
First Year College	3.03	2.75	2.89	7.50	3.94	5.65	12.03	7.18	9.67
Second Year College	4.68	.76	2.82	3.52	.22	1.81	5.65	.40	3.09
Adult	66.16	42.20	54.70	62.97	36.92	49.46	62.12	41.37	52.02
Special Needs	.83	.92	.89	.56	.93	.75	1.70	3.19	2.42

The Division of Vocational-Technical Education has plans to increase the depth of its reporting system. The Minnesota State Plan for 1970-71 includes a goal of developing a single system of planning, operating, and reporting for vocational education in the state.

Post-Secondary Level

The same reporting procedures and forms are used for community colleges and secondary schools in Minnesota. As in the case of secondary schools, the reporting system does not provide data for vocational education cost break-out at the state level.

Area Vocational-Technical Schools

The area vocational-technical school is a separate school for high school and evening adult students. It is supported and administered by a local school district under the supervision of the State Board of Vocational Education.

Because of its separate status and its exclusive attention to vocational education, the area vocational-technical school's "Annual Financial Report - Part III," Form F 29-2a, could be summarized and analyzed for cost data. However, these annual reports are used only to compute individual district allocations.

DETERMINATION OF EXCESS COST

Minnesota recognizes that excess costs may accrue to a local district because of service, transportation, or facility problems unique to that district's vocational education program. In order to determine excess costs, the state lists local educational agencies in order of their average expenditures per student, by level of vocational program. The median expenditure is ranked 1.0. The district's ranking from 0 to 2.0 is established and compared with its previous year's ranking. An excess cost allowance is determined from the district's rank order of the difference from the previous year's standing. This excess cost allowance is combined with other allocation criteria to determine the district's allocation of Federal funds.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Application of Minnesota's allocation formula involves two steps. First, a statewide average Federal reimbursement percentage is computed. Secondly, this percentage is modified for each district by application of the four criteria:

1. Manpower needs
2. Persons to be served
3. Relative ability to pay
4. Excess costs

The statewide average Federal reimbursement percentage is computed in the following manner:

$$\frac{\text{Federal Funds Available}}{\text{Total Expenditures}} = \begin{array}{l}\text{Statewide Average Federal}\\ \text{Reimbursement Percentage}\end{array}$$

The statewide average Federal reimbursement percentage is modified for each district by multiplying this percentage by the sum of the weighted criteria scores. The criteria and weighting are as follows:

Criteria	Top Weight	Score	Median	Low Score
Manpower needs	.2	2.0	1.0	0
Population needs	.4	2.0	1.0	0
Ability to pay	.2	2.0	1.0	0
Excess costs	.2	2.0	1.0	0

For every criterion each district is ranked in comparison with all other districts in the state. The scores on each criterion range from 0 to 2.0 with an unlimited number of differentials available by use of the decimal point.

Since the objectives of the State Plan call for encouragement for improvement, the final ranking of districts is determined on the basis of change in criteria scores from year to year.

STATE OF MINNESOTA
Department of Education
Vocational-Technical Division

EXHIBIT VI

VOCATIONAL-TECHNICAL ANNUAL REPORT FOR REIMBURSEMENT

Code XXIX-C-57
VE-2

Return original and one carbon by July 5. **Please follow directions on back.**

1. *(Check One)*
   - ☐ Agriculture
   - ☐ Business & Office Education
   - ☐ Distributive Education
   - ☐ Health Occupations
   - ☐ Home Ec. (Wage Earning Only)
   - ☐ Technician Training
   - ☐ Trade & Industrial Education
   - ☐ Other ______________

2. *(Check One)*
   - ☐ Secondary
   - ☐ Post Secondary
   - ☐ Adult
   - ☐ Special Needs
   - ☐ Other ______________

3. *(Check One)*
   - ☐ Apprenticeship
   - ☐ Preparatory
   - ☐ Supplemental
   - ☐ Cooperative
   - ☐ Other ______

☐ LEAVE BLANK

______________ (Name of School) ______________ (City) ______________ (County) ______________ (District No.)

4. SUBJECTS TAUGHT	5. TIME ELEMENT		6. ENROLLMENT			7. APPRENTICEABLE OCCUPATIONS ONLY)				8. INSTRUCTOR	9. SALARY	
						Jrny. men		Learner Appren.				
	Hours per Week	No. of Weeks	Total	M.	F.	M.	F.	M.	F.		This Subject	Total Salary

To the State Board for Vocational Education, Saint Paul, Minnesota
I hereby certify that this is an accurate annual report of the above vocational classes for the period July 1, 19____ to June 30, 19____, for which aid is requested.

______________________________ Recommended – State Supervisor

______________________________ Signature – School Official ______________ Title

______________________________ Approved – State Director of Vocational Education Date ______________

State of Minnesota
Department of Education
Division of Vocational-
Technical Education

EXHIBIT VII

F 50-1 (4/67)
(replaces XXIX-C83)

VOCATIONAL - TECHNICAL AGREEMENT FOR REIMBURSEMENT

(Not To Be Used For Agriculture or Home Economics)

(Check One)
- ☐ Business & Office Education
- ☐ Distributive Education
- ☐ Health Occupations
- ☐ Technician Training
- ☐ Trade & Ind. Education
- ☐ Other ____________________

(Check One)
- ☐ Day Post High Programs
- ☐ High School Programs
- ☐ Supplementary Training for Youth and Adults
- ☐ Apprenticeship (T & I only)
- ☐ Special Needs
- ☐ Other ____________________

____________________ (Name of School) ________ Dist. No. ____________________ (City) **For Year 196__ 196__**

We, the local board of education, of ____________________ in ____________________ County, hereby enter into agreement with the State Board for Vocational Education to conduct vocational education programs as listed herein and agree to expend the amount for the salaries of teachers listed below.

It is further agreed that all class work, selection of teachers, records, and reports will be in accordance with the Minnesota State Plan for Vocational Technical Education and that all instructional supplies, equipment, buildings and materials furnished by us will be such as approved by the State Board for Vocational Education.

It is understood that the reimbursement will be discontinued when the program becomes disqualified for any failure to meet the requirements of the Minnesota State Plan for Vocational Technical Education and the unexpended balance of the reimbursement contracted for will be forfeited. We plan to budget adequate funds for equipment and other facilities for the classes which will be available to assure adequate functioning of each approved vocational teacher's work.

This agreement will become void without notice and all claims for reimbursement will be forfeited if we fail to have all annual reports and applications for reimbursement on file in the Centennial Office Building, St. Paul, Minnesota on July 3 of the year succeeding the fiscal year covered by this agreement.

1 Name of Course or Activity	2 Fee Charged	3 Beginning Date	4 Number of Meetings	5 Days of Week Class Meets	6 Time of Day Class Begins	7 Time of Day Class Closes	8 Name of Teacher	9 Salary for Each Course

(Continue on Agreement Supplement for Additional Courses)

No. Supplementary Sheets Attached ________

Total Salaries for all Sheets ________

Do Not Use This Space

Signed ____________________ **Date** ________
Local Supervisor or Coordinator

Approved ____________________ **Date** ________
Superintendent or Local Director

Signed ____________________ **Date** ________
State Supervisor

Approved ____________________ **Date** ________
State Director, Vocational Education

NEW HAMPSHIRE

GENERAL PROGRAM GOALS

New Hampshire's State Plan for Vocational and Technical Education, administered by the Division of Vocational-Technical Education, has established the following student enrollment objectives for 1974. The percentage figures represent the proportions of various population elements expected to be enrolled in at least one vocational-technical education course in 1974.

1. 30 percent of rural secondary school students; 1 percent of urban secondary school students;
2. 15 percent of rural students and .2 percent of urban students, age 15-24 (in post-secondary facilities);
3. 85 percent secondary, 80 percent post-secondary, and 75 percent adults of the disadvantaged population;
4. 5 percent secondary, 3 percent post-secondary, and 5 percent adults of the handicapped population;
5. 1 percent of the population, age 16-64 (in adult vocational education).

In New Hampshire, projections of actual enrollments by program and grade level could not be obtained for 1975. Although projections were made for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of student enrollment by program and grade level could be obtained. Tables A-13 and A-14 show the estimated changes of enrollment that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

In New Hampshire, 90 percent of public education is financed by the local districts. Consequently, in the past, the Division of Vocational-Technical Education has not been required to analyze the costs of the vocational education program. The Division's staff, however, is interested in ascertaining the costs of various programs, in the belief that if costs could be estimated accurately, the public would be willing to initiate and support additional programs and to provide more facilities for expanded programs. At present, the Division lacks the resources to perform an in-depth cost analysis.

As do other states, New Hampshire provides forms on which local school districts make application for Federal funds. On its form, the state asks the district to report expenditures for equipment to be purchased, salaries of personnel and other expenses. Although these reports are related to vocational education programs, they apply themselves only to costs to be paid with Federal funds, and as a result are not adequate to provide thorough analyses of program costs.

Table A-13

Percent of Vocational Education Enrollment in New Hampshire by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	15.79	.00	5.83	12.44	.31	5.38	18.58	.79	6.49
Distributive	.00	.00	.00	.62	.33	.45	5.41	2.37	3.35
Health	.00	1.54	.97	.16	6.39	3.78	4.84	6.88	6.23
Home Economics (Gainful)	.00	.00	.00	.67	1.16	.96	2.14	1.84	1.93
Home Economics (Useful)	7.89	90.77	60.19	10.42	76.58	48.92	8.80	51.61	37.89
Office	2.63	9.23	6.80	5.22	13.91	10.28	24.39	30.96	28.86
Technical	7.89	N.A.*	2.91	7.29	.11	3.11	5.53	.09	1.83
Trade & Industry	71.05	1.54	27.18	63.18	1.20	27.11	30.30	5.46	13.42

*Data not available.

Table A-14

Percent of Vocational Education Enrollment in New Hampshire by Grade Level and Sex, for 1967, 1969 and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	F	M	F	T
Ninth	2.63	20.00	13.59	3.10	19.71	12.76	10.12	21.16	17.62
Tenth	2.63	18.46	12.62	6.01	16.03	11.84	12.69	21.75	18.84
Eleventh	13.16	18.46	16.50	12.80	18.35	16.03	20.83	20.52	20.62
Twelfth	10.53	29.23	22.33	12.37	26.90	20.83	14.11	22.75	19.98
First Year College	15.79	1.54	6.80	13.37	1.57	6.50	16.28	2.43	6.87
Second Year College	7.89	.00	2.91	7.10	.21	3.09	10.69	2.11	4.86
Adult	5.26	12.31	9.71	43.61	16.15	27.63	9.37	6.40	7.38
Special Needs	42.11	N.A.*	15.53	1.64	1.08	1.31	5.91	2.85	3.83

*Data not available.

DETERMINATION OF EXCESS COST

New Hampshire's State Plan for Vocational Education defines excess cost as "those costs of programs, services, and activities which local educational agencies provide which are greater than the cost which may be normally attributed to the cost of education in such agencies." However, New Hampshire has no mechanism for identifying these costs specifically.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

To all local educational agencies with approved program applications, the State of New Hampshire allocates a base allotment of 40 percent of Part B Federal funds available. Agencies' plans are approved on the basis of whether the district is of sufficient size to justify the program, and whether it is in concurrence with the state's master plan for vocational education. Additional Part B funds are allocated to agencies on the basis of priorities established by a committee of vocational education consultants, which reviews and assigns point values to each application.

Point values, on a scale of 100, are assigned to the following factors: Manpower needs (20 points), Vocational Education needs (40 points), School District's ability to pay (30 points), Excess costs (minus 10 points), and Evidence of change or growth (10 points).

The Division believes that since New Hampshire is a small state, the committee of consultants can be composed of people who are personally knowledgeable about each school's organizational structure, needs and capacities. As a result, the Division feels each application can be analyzed accurately and assigned appropriate point values. Following is an illustration of the system in operation, as outlined in the State Plan for Vocational and Technical Education:

> Twenty secondary school districts submit proposals totaling $900,000; and $200,000 are allocated for secondary vocational programs. Under the system described above, $80,000 (40% of $200,000) would be set aside as a base allotment. Each school would receive an equitable portion of the $80,000, as determined by the ratio of its budget to the total of $900,000.
>
> If Community A had a budget of $63,000, it would receive 7 percent of the $80,000; if Community B's budget were $45,000, it would receive 5 percent of the $80,000.
>
> After this distribution is made, the twenty applications are appraised and assigned point values, as described above. Total points for each district are divided into the $120,000 remaining for percentage distribution. For example: if the 20 applications total 1500 points, the procedure provides for $80 a point of additional funding. Thus, if Community A has 60 points, it receives an additional $4,800. Community B, with 90 points, receives $7,200.
>
> In summary: Community A, with a total budget of $63,000, receives a base allotment for vocational education programs of $5,600, plus $4,800 additional. The sum, $10,400, is about 16.5 percent of the budget. Community B, on a $45,000 budget, receives $11,200, or 24.9 percent of its total budget.

NEW YORK

GENERAL PROGRAM GOALS

Planning of occupational education programs in New York State is part of a total effort to give every person in the state a maximum opportunity for personal growth. One general purpose of occupational education, as in all education, must be the development of students' ability to evaluate their own aptitudes, interests and abilities in relation to the multitude of occupational opportunities in the modern economy, and to make appropriate educational and occupational decisions on the basis of this self evaluation. Clearly then the scope of occupational education programs extends beyond the offering of courses for preparation for specific occupations. They must also help to shape the career awareness of all public school students and their families, to develop skills in personal, social and civic interrelationships; must assist students in gaining entry into the occupations they select; and must help students of all ages to advance themselves occupationally to the extent of their desires and capabilities.

The New York State Plan for Vocational and Technical Education establishes the following student enrollment objectives for 1974. The list shows the numbers of students from various elements of the population expected to be enrolled in at least one vocational education course during the target year.

1. 555,050 secondary students;
2. 137,600 post-secondary students;
3. 81,450 secondary, 14,800 post-secondary, and 20,000 adults of the disadvantaged population;
4. 16,210 secondary, 12,400 post-secondary, and 8,000 adults of the handicapped population;
5. 148,602 students enrolled in adult vocational education programs.

In New York, projections for 1975 by programs could not be obtained, either for actual or percentage figures of enrollment. Only the actual enrollment for 1969 could be obtained. Table A-15 shows the percentages of vocational education enrollment for 1967 and 1969, by program. Table A-16, however, in addition to the 1967 and 1969 enrollment, shows the 1975 projections by grade level.

COST ANALYSIS

Secondary Schools

The New York State Division of Occupational Education finds identifying the total cost of its on-going vocational education programs unnecessary. This is because local districts provide most of the monetary support for such programs, and state and Federal funds are provided only for developmental or expanding programs. However, because of Federal regulations, the Division requires local educational agencies to determine costs of courses, programs, or specific items within the new or expanding programs for which Federal funds are sought. State Form FA-10 (see Exhibit VIII) is used to report budget expenditures. This form is designed

Table A-15

Percent of Vocational Education Enrollment in New York by Program and Sex, for Indicated Years

Program	1967			1969		
	M	F	T	M	F	T
Agriculture	6.43	.10	2.28	6.72	.11	2.19
Distributive	9.94	5.45	7.00	10.56	5.16	6.86
Health	.73	2.64	1.98	1.00	2.98	2.36
Home Economics (Gainful)	.15	.67	.49	.96	2.82	2.24
Home Economics (Useful)	1.22	37.67	25.11	2.21	40.50	28.45
Office	35.22	49.03	44.27	26.63	43.89	38.46
Technical	9.35	.36	3.46	9.96	.43	3.43
Trade & Industry	26.97	4.04	15.38	41.96	4.11	16.02

Table A-16

Percent of Vocational Education Enrollment in New York by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	5.94	13.74	11.06	5.16	8.50	7.45	4.03	7.15	6.12
Tenth	16.42	16.04	16.17	16.94	17.08	17.04	11.95	12.97	12.63
Eleventh	17.39	19.63	18.86	20.21	22.97	22.10	15.17	18.56	17.44
Twelfth	17.83	20.09	19.31	20.12	23.20	22.23	16.50	20.49	19.17
First Year College	5.99	1.92	3.32	7.31	2.18	3.79	17.37	5.58	9.48
Second Year College	3.80	1.28	2.15	4.47	1.44	2.39	10.64	3.68	5.98
Adult	29.47	25.18	26.66	23.09	20.12	21.05	14.12	13.24	13.53
Special Needs	3.17	2.12	2.48	2.70	4.51	3.94	10.22	18.34	15.65

according to the Uniform System of Accounts and can be used by the Division to identify all vocational education costs.

Post-Secondary Schools

New York's post-secondary institutions are not required to identify costs of on-going vocational programs. However, these institutions, like the secondary schools, are required to report expenditures for which Federal monies are sought. State Form FA-10 is used for this purpose.

DETERMINATION OF EXCESS COST

New York's State Plan for Vocational Education states that "excess cost shall be determined on the basis of comparison of the proposed programs, services and activities identified by a local educational agency with prevailing average statewide costs for such programs, services and activities."

Despite the existence of this definition, however, as discussion with personnel in New York's Division of Occupational Education revealed, in practice, New York ignores excess cost. This is because New York uses Federal funds on a competitive grant basis, paying the full cost of implementing new or expanded programs to eligible local educational agencies during the first year of operation.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

New York's system of allocation of Federal funds for vocational education is different from that of other states. The State Division of Occupational Education provides Federal funds only for new and expanding programs. Local districts develop applications which are screened by the Division to determine whether (1) they are in keeping with the State Plan, and (2) whether they are in keeping with the agencies' regional occupational program plans. If applications do not meet these criteria, they are returned to the districts. Applications which do meet these criteria are analyzed and ranked, primarily on the basis of the manpower needs of the local district, and the degree to which the programs described in the application meet those needs. Once a ranking has been established, the Division, starting from the top, allocates the full cost of each application until the funds are exhausted. This procedure, it is believed, uses Federal money actually to attack a problem area, rather than to spread it so thin that it accomplishes little in any one place.

EXHIBIT VIII

Project No. ______________
Dept. Use Only

Grant No. ______________
Dept. Use Only

INSTRUCTIONS

Complete this form in pen or by typewriter. Submit six (6) completed copies directly to appropriate program coordinator's office in the New York State Education Department, Albany, New York 12224.

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Division of Educational Finance
FEDERALLY AIDED PROGRAMS
Albany, New York 12224

PROPOSED BUDGET FOR THE OPERATION OF A FEDERAL PROJECT
FA-10 (3/69)

1969-60 Funded Projects

Project Title ______________

Project Schedule: Beginning Date ______________ Ending Date ______________

Name of Agency Administering Project ______________

Legal Name ______________ County ______________

Mailing Address ______________

Chief Administrative Officer ______________ Telephone No. ______________

GENERAL DIRECTIONS

1. Any increase in the number of and/or change in type of personnel items requires prior approval through a budget amendment. Also consultant salaries over $100 per diem must be prior approved.
2. Any increase in the number and/or change in type of equipment items having a unit value of $50 or more (budgeted under category 1230) requires prior approval through a budget amendment.
3. All out-of-state travel must be itemized and any changes or additions to this category must be prior approved.
4. Any time a budget subtotal category (salaries, contracted services, travel) is increased by more than 10 percent prior approval must be obtained. However prior approval is not required if the change does not increase the original budget subtotal by more than $500.
5. The total budget grant amount however may not be increased without prior approval.

Check Appropriate Federal Program Source of Funds: (Check One Box Only)

☐ Adult Basic Education
☐ Education Professions Dev. Act
☐ ESEA I
☐ ESEA III
☐ ESEA VI
☐ Migrant Program
☐ NDEA VA
☐ Vocational Education
☐ Welfare Education
☐ ______________

100 PROJECT ADMINISTRATION

Include herein those administrative costs which are directly attributable to this project. Those central administrative costs which must be prorated among several Federal projects should be listed in the separate Form FA-110 (CENTRAL ADMINISTRATIVE BUDGET). For each professional level administrative position listed herein, enclose two completed copies of FA-50 (SPECIAL PROGRAM ADMINISTRATIVE AND SUPERVISORY POSITION DESCRIPTION).

110 Salaries for Project Administrative Personnel: Salaries for legal services, business administration and fiscal control.

Specific Position Title	Estimated Number Total	FTE*	Project Salary
			$ ☐ 110

110.10 Salaries for Project Research and Evaluation

Specific Position Title	Estimated Number Total	FTE*	Project Salary
			$ ☐ 110.10

110.16 Salaries for Project Dissemination and Replication

Specific Position Title	Estimated Number Total	FTE*	Project Salary
			$ ☐ 110.16

ADMINISTRATIVE SALARIES SUMMARY (Sum of 110, 120, and 130)

Professional Salaries Subtotal $____________

Nonprofessional Salaries Subtotal $____________

120 Contracted Services for Project Administration (includes consultant services)

Purpose of Expenditure	Per Diem Rate (if consultant)	Total Amt. of Contract

Subtotal $____________ 120

*Full Time Equivalent

130.2 **Travel Expenses for Project Administrative Personnel**

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $____________ 130.2

130.3 **Other Expenses:** Project administrative supplies and materials, postage, etc.

Description of Item	Quantity	Proposed Expenditures

Subtotal $____________ 130.3

200 INSTRUCTION

210 **Salaries for Professional Personnel:** Salaries of assistant principals, other personnel performing the functions of supervisors of instruction, teachers, school librarian, television personnel. For each supervisory position listed herein (assistant project director, project supervisor, etc.), enclose two completed copies of Form FA-50 (SPECIAL PROGRAM ADMINISTRATIVE AND SUPERVISORY POSTION DESCRIPTION).

Specific Position Title	Estimated Number		Project Salary
	Total	FTE*	

Subtotal $____________ 210

*Full Time Equivalent

215 **Salaries for Nonprofessional Personnel**: Salaries for teacher aide, secretarial and clerical assistance, and others in support of the professional personnel.

Specfic Position Title	Estimated Number		Project Salary
	Total	FTE	

Subtotal $____________ (215)

250.3 **Contracted Services for Instruction**: (Includes consultant service)

Purpose of Expenditure	Per Diem Rate (if consultant)	Total Amt. of Contract

Subtotal $____________ (250.3)

250.2 **Travel Expenses for Instruction**

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditures

Subtotal $____________ (250.2)

Other Instructional Expenses

220 **Textbooks** - Textbooks furnished free to all pupils of one or more specific classes, grades, or schools.

Subject Area	Quantity	Proposed Expenditure

$☐ 220

230 **School Library Resources** (cataloged and processed): School library books, any reference books, periodicals and newspapers for use by the school library, audiovisual materials (not equipment) used in the instructional program. Include only materials to be used in the school library or materials center.

a. School Library Resources (other than textbooks)	Quantity	Proposed Expenditure
(1) Books	______	$______
(2) Periodical subscriptions	______	$______
(3) Other printed library materials	______	$______
(4) Audiovisual Materials	______	$______
b. Costs of Acquisition		
(1) Cataloging and Processing Charges (including cost of preprocessing & processing kits)		$______
(2) Ordering Charges		$______

Total $☐ 230

240 **Other Miscellaneous Expenses for Instruction:** includes teaching supplies and materials

Description of Item	Quantity	Proposed Expenditure
1. Programmed Learning & Workbook Materials		
2. Testing Supplies		
3. Classroom Supplies & Materials		
4. Miscellaneous Supplies & Expenses (Instruction)		

$☐ 240

Subtotal Other Expenses
(Sum of 220, 230, and 240) $______

260 STAFF DEVELOPMENT (Recruitment & Training)

260.1 Salaries or Stipends for Staff Development

Specific Position Title	Estimated No. of Positions Total	FTE	Project Salary
1. Teachers			
2. School Administrators			
3. Trainers of Teachers			
4. Pre-service Trainees			
5. Other (attach explanation)			

Subtotal $___________ 260.1

260.4 Contracted Services for Staff Development; includes consultant services

Purpose of Expenditure	Per Diem Rate (if consulted)	Total Amt. of Contract

Subtotal $___________ 260.4

260.2 Travel for Staff Development

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $___________ 260.2

Other Expenses for Staff Development

260.5 Tuition for Staff Training

Name of Institution Where Trng. Conducted	No. of Trainees	Purpose of Program	Tuition Costs Indv.	Tuition Costs Total

$__________ 260.5

260.6 Inservice Education Expenses for Staff Training: includes conferences

Purpose	No. of Participants	Rate of Charge	Estimated Cost

$__________ 260.6

260.3 Other Miscellaneous Cost

Description of Item	Quantity or Description	Proposed Expenditure
1. Rental of Equipment (attach explanation)		$__________
2. Other(attach explanation)		$__________

$__________ 260.3

Subtotal of Other Staff Development Costs (Sum of 260.3, 260.5, and 260.6) $__________

300 GUIDANCE AND ATTENDANCE SERVICES

310 Salaries for Guidance and Attendance Services: (a) payroll services for Guidance officers, school psychologist and directors, attendance officers, visiting teachers, and school social workers (b) payroll services for secretarial and clerical assistances to any of the aforementioned personnel.

Specific Position Title	Estimated No. of Positions Total	FTE	Project Salary

Professional Salaries Subtotal $____________

Nonprofessional Salaries Subtotal $____________

Total Guidance & Attendance Salaries $☐ 310

320.4 Contracted Services: **includes consultants services**

Purpose of Expenditure	Per Diem Rate (if consultants)	Total Amt. of Contract

Subtotal $____________ 320.4

320.2 Travel Expenses for Guidance and Attendance Services

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $____________320.2

320.3 Other Expenses for Guidance and Attendance Services

Description of Item	Quantity	Proposed Expenditures

Subtotal $____________320.3

400 HEALTH SERVICES

410 **Salaries for Health Services** - Payroll salaries for health services of (a) school physicians including psychiatrists (b) school dentists (c) school nurses (d) school secretarial and clerical assistants and attendants.

Specific Position Title	Estimated No. of Positions Total	FTE	Project Salary

Salary Subtotal $____________ 410

420.4 **Contracted Services**

Purpose of Expenditure	Per Diem Rate	Total Amt. of Contract

Subtotal $____________ 420.4

420.2 **Travel Expenses for Health Services**

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $____________ 420.2

420.3 **Other Expenses for Health Services** - Supplies for health services and miscellaneous expenses for health services including payments made on a free or contracted-service basis.

Description of Item	Quantity	Proposed Expenditure

Subtotal $____________ 420.3

500 PUPIL TRANSPORTATION SERVICES

510 **Salaries for Pupil Transportation Services**: Payroll salaries of pupil transportation personnel whose services would be directly attributable to the proposed project

Specific Position Title	Estimated No. of Positions		Project Salary
	Total	FTE	

Subtotal $______________ 510

520 **Contracted Services and Pupil Carriers**: (a) Contract expenditures to owners who operate vehicles to transport pupils, (b) expenditures to parents for transporting children, (c) expenditures for transportation on public carrier vehicles being used by the general public regardless of whether payments are to pupils or carriers, and (d) any travel allowances paid to pupils.

Description of Item	Proposed Expenditure

Subtotal $______________ 520

560 **Other Expenses for Pupil Transportation** - Includes gas, oil, insurance, and maintenance to be reimbursed at 10¢ per mile.

Number of Miles (1)	Rate @ 10¢/mile (2)	Proposed Expenditures (1 x 2)

Subtotal $______________ 560

600 OPERATION OF PLANT

610 Salaries for Operation and Maintenance of Plant: Payroll salaries of personnel directly engaged in keeping the physical plant open and ready for use under thi•

Specific Position Title	Estimated No. of Positions		Project Salary
	Total	FTE	

Salary Subtotal $______________ 610

560 Other Expenses for Operation of Plant: (a) Contracted services for operation of plant and (b) heat and other utilities for operation of plant

In reference to heat, light, or water, any proposed expenditures must be directly identifiable with and attributable to this special project If a facility proposed for use in this project is to be used solely as a special project center and more than one special project or program is to be conducted herein, the proposed expenditures for heat, light, and water relevant to this project must correspond to an equitable determined proration of total expenditures for these utilities

If the facility is not a separate special project facility, anticipated expenditures for heat, light, and water are allowable only if this project is to be operated at a time when no other educational program or other activity is to be in operation In such an instance, proposed expenditures for heat, light and water should be determined as follows:

$$\frac{\text{No. of hours per week this proposed special project is anticipated to be in operation*}}{\text{Total gross no. of hours per week all other programs or activities are anticipated to be in operation in facility}} \times \text{Anticipated expenditures for provision of heat, light, and water during the project period}$$

*NOTE: Include only those hours of week in which no other activity operated in building.

Description of Item	Proposed Expenditures

Subtotal ______________ 660

700 MAINTENANCE OF PLANT

710 Salaries for Maintenance of Plant: Salaries of personnel directly engaged in maintenance activities such as carpentry, painting, plumbing, electrical work, maintenance of grounds, etc., under this program.

Specific Position Title	Estimated No. of Positions		Project Salary
	Total	FTE	

Subtotal $____________ 710

740 Other Expenses for Maintenance of Plant: (a) Contracted services for maintenance of plant, (b) replacements of equipment, and (c) miscellaneous expenses, including those for supplies, for maintenance of plant.

Description of Item	Proposed Expenditures

Subtotal $____________ 740

810 EMPLOYER CONTRIBUTION FOR EMPLOYEE BENEFITS

(See appropriate issue of School Financial Aid Bulletin or Federal Aid Handbook for specific rates to be used for this Federal Project.)

Item	Proposed Expenditures
1. Social Security	$
2. Retirement	$
3. Health Insurance	$
4. Workmens Compensation Insurance	$
Subtotal	$__________________ 810

830 RENTAL OF LAND AND BUILDINGS

Such rented building space used to house children must be approved by the Division of Educational Facilities Planning.

Description of Item	Proposed Expenditures

Subtotal $______________ 830

900 FOOD SERVICES

910 Salaries for Food Services: Payroll salaries for food services as relevant to those personnel whose purpose is the preparation and serving of meals or snacks in connection with project activities.

Specific Postion Title	Estimated No. of Positions, Total	FTE	Project Salary

Salary Subtotal $______________ 910

920.4 Contracted Services

Purpose of Expenditure	Per Diem Rate	Total Amt. of Contract

Subtotal $______________ 920.4

920.2 Travel

Purpose of Travel	Destination	Proposed Expenditure

Subtotal $______________ 920.2

920.3 Other Expenses for Food Services: (Does not include equipment)

NOTE: LUNCHES (AND COST OF FOODS) WHICH QUALIFY FOR NATIONAL SCHOOL LUNCH (OR SCHOOL MILK) REIMBURSEMENT PROGRAMS WILL NOT BE REIMBURSED UNDER THIS PROJECT.

Description of Item	Proposed Expenditures

Subtotal $______________ 920.3

1000 COCURRICULAR ACTIVITIES

Cocurricular Activities: Interscholastic activities, entertainments, publications, clubs, bands and orchestra, or activities operated by the student body under the guidance and direction of adults.

1010 Salaries for Cocurricular Activities - Payroll salaries of personnel engaged in student body activities.

Specific Position Title	Estimated No. of Positions		Project Salary
	Total	FTE	

Salary Subtotal $__________ 1010

1020.2 Travel Expenses for Cocurricular Activities

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $__________ 1020.2

1020.3 Other Expenses for Cocurricular Activities - Supplies, contract services, and miscellaneous expenses for student body activities.

Description of Item	Quantity	Proposed Expenditure

Subtotal $__________ 1020.3

1100 COMMUNITY - HOME RELATIONS

1100 **Salaries for Community - Home Relations**

Specific Position Title	Estimated No. of Positions		Project Salary
	Total	FTE	

Salary Subtotal $____________ 1110

1110.2 **Travel Expenses for Community - Home Relations**

Position of Traveler	Destination of Traveler	Purpose	Proposed Expenditure

Subtotal $____________1110.2

1110.3 **Other Expenses for Community - Home Services** - Supplies, materials, contracted services, and miscellaneous expenses.

Description of Item	Proposed Expenditures

Subtotal $____________1110.3

1220.3 MINOR REMODELING

Pertinent here are expenditures for minor structural alterations and the initial or additional installation of heating and ventilating systems, electrical systems, plumbing systems, fire protection systems, and other systems in existing buildings. Minor remodeling usually takes place within the existing floor area. Repairs and replacement of service systems should be budgeted in the 700 Series. **Building additions are** not to be included here.

The gross claim for minor remodeling may not exceed $2,000 per room.

Description of Item	Proposed Expenditures

Subtotal $__________ 1220.3

1230 EQUIPMENT

Initial or additional items of equipment, such as furniture, furnishings, machinery, and vehicles that are not integral parts of the building or building service. Repairs and piece-for-piece replacements of equipment are not pertinent here; these pertain instead to the 700 Series, Maintenance of Plant.

Any and all equipment purchased in support of this project with a unit cost of $50 or more should be itemized in this category.

Item	Proposed Quantity	Unit Cost	Proposed Expenditures

Subtotal $__________ 1230

PROJECT OPERATIONAL BUDGET SUMMARY

ACTIVITY	CODE	SALARIES		CONTRACT SVC.	TRAVEL	OTHER
		PROFESSIONAL	NONPROF.			
ADMINISTRATION	100	$	$	$	$	$
INSTRUCTION	200					
STAFF DEVELOPMENT	260					
GUIDANCE & ATTENDANCE	300					
HEALTH SERVICES	400					
PUPIL TRANS.	500	XXXX			XXXX	
OPERATION OF PLANT	600	XXXX		XXXX	XXXX	
MAINTENANCE OF PLANT	700	XXXX		XXXX	XXXX	
EMPLOYEE BENEFITS	810	XXXX	XXXX	XXXX	XXXX	
RENTAL OF BUILDINGS	830	XXXX	XXXX		XXXX	XXXX
FOOD SERVICES	900					
CO-CURRICULAR ACT	1000					
COMMUNITY - HOME REL.	1100					
MINOR REMODELING	1220.3	XXXX	XXXX	XXXX	XXXX	
EQUIPMENT	1230	XXXX	XXXX	XXXX	XXXX	
TOTALS		$	$	$	$	$

GRAND TOTAL $ ________________

CHIEF SCHOOL ADMINISTRATOR'S CERTIFICATION

I hereby certify that the requested budget amounts are necessary and appropriate to the implementation of this project. I hereby certify that the Assurance of Compliance with Title VI of the Civil Rights Act dated ________________________ applies to the application submitted herewith.
month, day, year

A first advance payment of 25 per cent is hereby requested

Date ________________________ Signed ________________________________
Chief Administrative Officer

Dept. Use Only:

Project No.: ________________ Grant No.: ________________

UAN: ________________ LEA No.: ________________

OHIO

GENERAL PROGRAM GOALS

The 1970 Ohio State Plan for Vocational Education envisages three types of goals: (1) general goals of the Ohio Division of Vocational Education; (2) general goals for Vocational Education Programs; and (3) process, or "service" type statewide goals in vocational education. In this context, goals and objectives are spelled out for programs at the K-6, 7th and 8th grade, 9th and 10th grade, 11th and 12th grade, and adult levels. State officials have indicated that an attempt will be made to estimate costs of the objectives set forth in the State Plan, and to use these cost data for immediate planning and promotion of vocational education in Ohio.

Examination of State Plan goals reveals the following trends in vocational education during the next decade:

1. Emphasis on work orientation programs at the K-6 grade level, to encourage constructive work attitudes in all youth;
2. Emphasis on career orientation programs at the 7th through the 10th grade level, "to build a basis for career exploration programs . . . in light of . . . the actual and potential labor market demands for gainful employment";
3. Emphasis on preparatory job training vocational education programs for students at the 11th and 12th grade levels and post-secondary level;
4. Emphasis on occupational work adjustment programs for dropout-prone students at the 9th and 10th grade levels;
5. Emphasis on retraining and upgrading vocational education programs for adult workers.

The Ohio State Plan has established the following student enrollment goals for 1975. Percentage figures are proportions of various population elements expected to be enrolled in at least one vocational education course:

1. 40 percent of secondary students;
2. 3.2 percent of the population, age 18-22 (in post-secondary facilities);
3. 75 percent of disadvantaged youth;
4. 75 percent of handicapped youth;
5. 10 percent of the total adult working force (in retraining and upgrading vocational education programs).

Table A-17 shows the distribution of vocational education enrollment in Ohio, by program, for 1967, 1969, and 1975. Table A-18 shows the distribution, in terms of percent enrollment, by grade level, for the same years.

Table A-17

Percent of Vocational Education Enrollment in Ohio by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	F	M	F	T	M	F	T
Agriculture	20.60	.30	10.00	20.00	.50	9.30	18.00	.00	6.00
Distributive	5.10	4.80	4.90	9.10	4.80	6.70	11.00	5.00	9.00
Health	.10	3.00	1.60	.10	5.40	3.00	1.00	7.00	4.00
Home Economics (Gainful)	.00	.70	.40	1.80	1.80	1.00	2.00	3.00	2.00
Home Economics (Useful)	10.90	72.30	42.90	9.20	67.20	41.10	7.00	63.00	40.00
Office	3.00	16.10	9.80	3.50	16.30	10.50	5.00	17.00	12.00
Technical	2.80	0.10	1.40	2.50	0.00	1.10	2.00	.00	1.00
Trade & Industry	57.90	2.80	29.10	55.40	3.90	27.10	54.00	5.00	26.00

Table A-18

Percent of Vocational Education Enrollment in Ohio by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	3.61	12.20	8.08	3.00	10.79	7.28	1.76	7.40	4.64
Tenth	3.26	9.06	6.27	3.11	8.52	6.08	1.82	5.84	3.87
Eleventh	8.58	11.65	10.17	10.14	12.83	11.62	5.93	8.80	7.40
Twelfth	9.36	11.89	10.66	12.05	15.03	13.69	7.04	10.31	8.71
First Year College	1.29	2.05	1.68	2.01	2.86	2.48	2.57	4.30	3.45
Second Year College	.77	.08	.41	.71	.19	.42	.90	.28	.59
Adult	71.42	52.36	61.38	65.39	48.52	56.11	65.29	56.98	61.06
Special Needs	1.72	.87	1.27	3.60	1.27	2.32	14.68	6.08	10.29

The percentages shown for 1975 are projected from two factors: (1) the trends indicated by changes in percent from 1967 to 1969; and (2) the professional opinions of personnel in the Ohio State Office of Vocational Education. The extrapolations are rough and the percentages are only approximate.

COST ANALYSIS

Cost analysis in Ohio is standardized under a plan dated 1 June 1970, entitled: "An Analysis of Vocational Education Instructional Program Costs at the Secondary Level per Class Instruction Hour and per Pupil Instruction Hour by USOE Vocational Education Instructional Program, February, 1970." This plan, developed cooperatively by officials of the Division of Vocational Education and field staff, will be implemented on an experimental basis in several Ohio districts.

Under the Ohio plan, costs of programs and program areas are classified as follows:

1. Instruction, as identified by:
    a. Administration
    b. Supervisors of vocational areas
    c. Principals or directors of a school
    d. Academic teachers
    e. Vocational teachers
    f. Others
    g. Equipment (vocational shops and laboratories);
2. Auxiliary agencies, a category which includes expenditures related to coordinated activities, libraries, transportation of pupils, playground and community centers, and other auxiliary agencies;
3. Operation and maintenance of school plant;
4. Shop and laboratory equipment amortization.

Several features of the Ohio Plan warrant mention here. First, all program areas and courses are identified by unique two-digit codes, which permit standardized categorization of items. Second, where costs are of an indirect nature; that is, attributable to more than one budget category simultaneously, a method of proration based on pupil hour of instruction is used to distribute expenditures. Third, costly shop and laboratory equipment is amortized over a specified period of time, so as not to reflect unusually high expenditures for a particular program at a given time. Fourth, all costs associated with the operation of vocational education programs are accounted for, including costs of pupil transportation, operation of school plant, and maintenance of school plant. Fifth, all expenditures are grouped into relatively few categories; thus, accounting procedures are simplified. Sixth, all program cost data are adapted to techniques of rapid data processing in computer facilities. Finally, the program accounting categories are adapted to existing practices in Ohio which are consistent with those suggested by the United States Office of Education.

In summary, the Ohio plan of program analysis will provide two measures: (1) the cost of one instruction hour of service per classroom unit in any vocational program, and (2) the cost of one instruction hour of service per pupil in any vocational program.

DETERMINATION OF EXCESS COST

In Ohio, no attempt is made at this time to fund vocational education programs on a differential cost basis. However, by the end of February, 1971, Ohio will have estimates of differential program costs in vocational education, should legislators require them.

Excess cost of operating vocational education programs in Ohio is accommodated by the Ohio State Department of Education in two ways. First, each approved vocational education classroom teacher unit receives a supplementary $1000 allotment, as compared with the regular allotment under the Minimum Foundation Program. Second, the average vocational education unit is assigned a weight of approximately 1.75 times the regular unit. This second provision allows for 75 percent more funding from the state than would be available normally per general classroom unit.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Regular vocational education programs at the secondary and post-secondary level in Ohio are funded under the State Foundation Program. Certain adult programs and other special programs are funded, or aided, from Federal sources, the monies distributed in accordance with mandated criteria specified by the Vocational Education Amendments of 1968.

The Ohio State Foundation Program is a "fixed unit equalization" plan, in which funds are allocated to local districts on the basis of the number of approved classroom units. In calculating the fund allotments to each local district classroom unit, the following kinds of expenditures are recognized:

1. Certified employee salary allowance, as prescribed by the state minimum salary schedule, which provides increments for both training level and experience credit;
2. Extended service allowance for teachers serving beyond the term of regular classroom teachers;
3. Retirement and sick leave allowance for certified employees;
4. Classroom operation allowance to cover costs arising from services of non-certified personnel;
5. Transportation allowance.

Regular vocational education programs currently funded under the Ohio Foundation Program receive supplementary compensation in two ways. First, an additional allocation of $1000 per classroom teacher unit is granted to an approved vocational unit. Second, additional state funds are assigned by an extra weighting to vocational units. On the average, this additional weighting is equivalent to 1.75 times the regular unit allotment. Each vocational education program receives a different weighting, depending on average enrollment, and student contact hours per year for that program. The weighting for each unit is determined from a schedule issued by the program areas within the Division of Vocational Education.

All programs not funded under the Ohio Foundation Program are funded from Federal monies. Priority for funding is determined by obtaining the rank of each district under each of six criteria, converting the six scores into one composite rank for each district, and then ranking all the districts from 1 to n, where n = the total number of independent school districts in the state. Districts in the top 33 1/3 percentile receive top priority; districts between 66 2/3 and 33 1/3 receive middle priority; and districts below 33 1/3 percentile receive lowest priority. All available Federal funds are thus allocated to qualifying districts.

The aforementioned criteria for establishing priorities for funding are as follows:

1. Manpower needs and job opportunities, determined from information furnished by the Ohio State Employment Service;
2. Rate of unemployment compared with state average;
3. Percent of unemployed youth, compared with state average;
4. Number of children from low income families per thousand, compared with state average;
5. Relative ability to pay, as measure of a local agency's wealth per pupil, compared with state average;
6. Relative costs of programs, services, and activities.

All calculations for allocation of Federal funds in Ohio are carried out by computerized data processing methods.

OREGON

GENERAL PROGRAM GOALS

The major goal of vocational education in the State of Oregon is to develop and maintain a statewide career educational program, readily available to all persons in the state; i.e., secondary and post-secondary students and adults. By 1975, Oregon hopes to make vocational education available to from 75 to 80 percent of eleventh and twelfth graders, and to have enrolled 50 percent in a career education program based on the occupational cluster concept. Also, the state hopes to establish specific occupational training programs in the community colleges, which will accommodate 15,000 FTE students by 1975. Finally, Oregon expects to develop, by 1975, job training programs that will increase threefold the enrollment in programs for the upgrading and retraining of adult workers in all occupational areas.

Oregon's State Plan for Vocational and Technical Education has established the following student enrollment objectives for 1974 (percent figures are proportions of population elements expected to be enrolled in at least one vocational education course):

1. 55 percent of secondary students;
2. 34 percent of total post-secondary students, age 18-24 (in post-secondary vocational programs);
3. 4 percent of the population, age 15-64 (in adult vocational education).

In Oregon, projections for 1975, by program, could not be obtained, either for actual enrollments or percentages of enrollments. Only actual enrollments for 1969 were available. Table A-19 shows the percentages of vocational education enrollment for 1967 and 1969 by program. Table A-20, in addition to the 1967 and 1969 enrollment, shows 1975 projections by grade level.

COST ANALYSIS

Secondary Level

The Oregon Department of Education has not yet developed a rationale for program accounting in vocational education at the secondary level.

Program accounting in vocational education in general is incorporated in the Oregon State General Fund Budget, where costs are broken down in terms of the traditional functions. One exception is in the determination of excess costs, discussed below.

Post-Secondary and Adult Level

Local community colleges in Oregon report their operating expenditures annually under the following headings: student services, instruction, administration, plant operation and maintenance, and fixed charges. Cost analysis of community college operations is based on the unit cost of education, which equals the total operating cost of an institution divided by its total full-time equivalent student enrollment.

Table A-19

Percent of Vocational Education Enrollment in Oregon by Program and Sex, for Indicated Years

Program	1967			1969		
	M	F	T	M	F	T
Agriculture	31.37	.91	14.19	26.59	1.35	15.32
Distributive	4.71	4.24	4.44	7.45	5.78	6.70
Health	.39	3.33	2.05	.61	8.71	4.23
Home Economics (Gainful)	.39	1.21	.85	1.18	27.55	12.95
Home Economics (Useful)	1.18	50.00	28.72	N.A.*	N.A.*	N.A.*
Office	12.55	38.79	27.35	8.76	51.90	28.02
Technical	5.49	.30	2.56	8.06	.44	4.65
Trade & Industry	44.71	1.21	20.17	47.37	4.27	28.12

*Data not available.

Table A-20

Percent of Vocational Education Enrollment in Oregon by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	7.06	8.48	7.86	6.70	.58	3.97	5.86	.51	3.49
Tenth	8.24	7.88	8.03	7.75	2.99	5.62	6.79	2.65	4.95
Eleventh	12.55	15.76	14.36	13.95	15.15	14.48	12.21	13.41	12.75
Twelfth	12.55	18.18	15.73	15.24	19.49	17.14	13.34	17.26	15.08
First Year College	9.12	4.24	6.32	13.52	8.27	11.17	16.39	10.14	13.62
Second Year College	2.75	.61	1.54	5.97	3.36	4.80	7.24	4.12	5.86
Adult	47.84	43.33	45.30	35.60	48.59	41.40	30.71	42.52	35.95
Special Needs	.00	.00	.00	1.27	1.58	1.41	7.44	9.38	8.30

A second stage of cost analysis involves calculation of the unit cost by program. Form 480-22 (see Exhibit IX) requires community colleges to prorate operating costs among its various programs. Program cost, therefore, equals the total operating cost associated with a particular program divided by the total full-time equivalent student enrollment in that program. Form 480-2 (see Exhibit X) is used to collect unit program costs. Table 60 (see Exhibit XI) illustrates 1966-68 operating cost per FTE data.

DETERMINATION OF EXCESS COST

Secondary Vocational

Current accounting practices in Oregon do not provide a breakdown of actual program costs for individual courses.

Excess costs for secondary vocational programs are determined by using each district's average costs per ADM, and a ratio of their average class size, versus all education programs. Expressed as formula, excess cost is determined as follows:

$$C_E = \overline{C} \cdot \frac{\overline{N}_T}{\overline{N}_V}$$

where C_E = approved excess cost of VE program

$\overline{C}$ = district's average cost per ADM for all school programs

$\overline{N}_T$ = average district's class size for all school programs

$\overline{N}_V$ = average class size of district's VE programs

The calculated approved excess cost of vocational education, C_E, is taken to represent 70 percent of the per pupil cost. The Division of Vocational Education in Oregon attributes the remaining 30 percent of per pupil costs to expenses other than the class size factor in the operation of vocational education programs. In addition, Oregon places both a maximum and a minimum limit on the approved excess cost per vocational ADM, as calculated by the above formula. The maximum limit in excess cost is applicable in a situation where the ADM in a vocational program is below an approved minimum state ADM. On the other hand, a minimum approved excess cost is justified on the basis of additional capital and operating expenditures for special facilities required for vocational education programs.

Finally, each district's priority for the state reimbursable excess cost is determined from the following basic excess cost grant formula:

$$\text{Basic Excess Cost Grant} = \text{Total State Basic Cost Grant} \times \frac{\text{District Excess Cost}}{\text{Statewide Excess Cost}}$$

$$\text{where District Excess Cost} = \frac{10}{7}(\text{Approved Excess Cost, } C_E) = \frac{10}{7}\, C_E$$

Post-Secondary and Adult Program

No specific formula is used to calculate post-secondary and adult program excess costs in Oregon. Excess costs are determined, however, from annual operative costs data for total vocational programs (and total non-vocational programs) reported by the community colleges. Two factors are taken into consideration for determining statewide community college excess costs: (1) higher cost of providing programs in smaller colleges, and (2) special costs attributed to program operations and instructional equipment.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Allocation of funds for vocational education in Oregon is based on applications received from local districts. These applications are reviewed by the Department in light of the following four criteria: (1) manpower needs, (2) vocational education needs, (3) relative program costs, and (4) relative ability to provide resources. Programs which do not meet the state outlined manpower criteria are not considered for Federal fund support. All other programs, that is, programs that have been approved, are eligible for Federal fund support, with the allocation for each district determined by three formulas, each incorporating one of the three criteria: vocational education needs, relative program costs, and relative ability to provide resources. Secondary and community college reimbursements are computed separately, the computations being based on each district's annual application.

Secondary Reimbursement

The rationale for the distribution of Grant B funds for regular secondary programs takes into account (1) a student's needs grant; (2) a basic vocational education excess cost grant; and (3) a supplementary vocational education grant. Relative priorities for allocation of funds to each district are determined by a formula for each of the three criteria. Funds are distributed on a per pupil basis.

1. Student's needs grant.
   The student's needs grant for disadvantaged and handicapped students enrolled in vocational education programs is determined for each district by the following formula:

$$\text{Student's Needs Grant} = \text{Total Students' Needs Grant} \times \frac{\text{District No. Enrolled}}{\text{Statewide No. Enrolled}}$$

2. Basic vocational education cost grant (Refer to previous section, "Determination of Excess Cost").

3. Supplementary vocational education.
   The supplementary vocational education grant to local districts varies inversely with the district's relative ability to pay. The amount of each district's payment is based on its relative ability to support a basic level of expenditures for vocational programs as indicated by the district's true cash value per secondary ADM and its relative expenditure per vocational student. The method to

be used in distributing this grant is in accordance with the practices used in the state's equalization program for Basic School Support.

The method used to calculate the district's supplementary grant is briefly described in the State Plan:

(a) Determine relative ability rate.
The relative ability rate, determined annually, represents the tax rate which, when applied to the assigned true cash value of taxable property of the eligible districts, will distribute the supplementary grant funds to those districts receiving them at a uniform rate. Districts receiving a basic vocational education grant only will be able to support their vocational education programs at a lower rate than that required of the supplemental grant districts. To determine the rate, participating districts will be ranked according to their ability to support their vocational education programs independently of the supplementary grant. Starting with the least able district, the components of the formula are cumulative, and a rate established at each point of accumulation by the following:

$$\text{Ability Rate} = \begin{array}{c}\text{Cum. Statewide}\\ \text{Excess Cost}\end{array} - \begin{array}{c}\text{Cum. Basic}\\ \text{Grant}\end{array} - \frac{\text{Total Supp. Grant}}{\text{Cum. TCV of Participating Districts*}}$$

*This is a cumulative total of assigned district's true cash value (TCV) from the following formula:

$$\text{Assigned District TCV} = \frac{\text{1/3 Total True Cash Value}}{\text{ADM - 12}} \times \text{Voc. ADM}$$

The rate derived by this formula will increase to a maximum as the components of the formula increase; beyond this point the rate will decrease. The rate chosen is that at the maximum point.

(b) District's supplementary grants are determined by the following formula:

$$\begin{array}{c}\text{Supp.}\\ \text{Grant}\end{array} = \begin{array}{c}\text{Approved}\\ \text{Excess Cost}\end{array} - \begin{array}{c}\text{Basic}\\ \text{Grant}\end{array} - (\text{Ability Rate} \times \text{Assigned Dist. TCV})$$

Community College Reimbursement

1. The students' needs grant is distributed by the method used for secondary districts, discussed in Section 1 above.

2. Under the basic excess cost grant, all community colleges receive an established amount for each FTE of actual enrollment up to a designated maximum. The rate and the maximum enrollment to which it applies is determined annually, taking into consideration total enrollments, funds available, number of institutions, and the excess cost factor. (Refer to "Determination of Excess Cost" above.)

3. The formula for distribution of supplementary grants is based on the relative cash value of the local district. The method used is the same as that for secondary school reimbursement.

EXHIBIT IX

Form 480 7 (Aug. 65)
Ore State Dept Ed

Final Report of COMMUNITY COLLEGES

FINANCIAL SUMMARY - Vocational Education

All Allowable Expenditures

(Legal Designation of District Reporting)

Year ending June 30, 19__

FUNCTION AND SUBFUNCTION CLASSIFICATIONS			TOTALS BY FUNCTION	ACCOUNTING OBJECT CLASSIFICATIONS								TOTAL COLS. 5 THRU 11 ONLY
				(1) SALARY PROFESS-IONAL	(2) SALARY SEC'L AND CLERICAL	(3) SALARY OTHER	(4) CONTRACTED SERVICES	(5) SUPPLIES & MATERIALS	(6) TRAVEL	(7) OTHER EXPENSES	(8) REPAIRS & REPLACE. EQUIP	
1	2		3	4	5	6	7	8	9	10	11	12
11000	ADMINISTRATION	1										
11100	GOVERNING BOARD EXPENSE	2										
11200	PRESIDENT'S OFFICE	3										
11300	BUSINESS OFFICE	4										
11400	LEGAL COUNSEL AND AUDITING	5										
11500	ELECTIONS	6										
12000	INSTRUCTION	7										
12100	REGISTRAR'S OFFICE	8										
12200	SUPERVISION OF INSTRUCTION	9										
12300	CLASSROOM INSTRUCTION	10										
12400	GUIDANCE AND COUNSELING	11										
12500	LIBRARY SERVICES	12										
13000	RESEARCH	13										
14000	PUBLIC INFORMATION SERVICE	14										
14100	NEWS, RADIO, AND TELEVISION SERVICE	15										
14200	PUBLICATIONS	16										
14300	PUBLIC LECTURES AND CONFERENCES	17										
15000	OPERATION OF PLANT	18										
16000	MAINTENANCE OF PLANT	19										
17000	FIXED COSTS	20										
17100	RETIREMENT CONTRIBUTION	21										
17200	INSURANCE	22										
17300	JUDGMENTS	23										
17400	RENTAL EXPENSE	24										
17500	INTEREST ON LOANS	25										
	TOTAL	26										

EXHIBIT X

FORM 480.22 (AUG. 65)
ORE STATE DEPT ED

Final Report of COMMUNITY COLLEGES

FINANCIAL SUMMARY - Vocational Education

Other than professional salaries

(Legal Designation of District Reporting)

Year ending June 30, 19__

			BY SERVICE							BY PURPOSE				
CODE		SELECTED TOTALS FROM COL. 12 FORM 480.2	AGRICULTURE	DISTRIBUTION	HEALTH	HOME ECONOMICS	OFFICE	TECHNICAL	TRADE & INDUSTRY	SPECIAL NEEDS	SECONDARY	POST-SECONDARY	ADULT	ANCILLARY
1		2	3	4	5	6	7	8	9	10	11	12	13	14
11100	1													
11200	2													
11300	3													
11400	4													
11500	5													
12100	6													
12200	7													
12300	8													
12400	9													
12500	10													
13000	11													
14100	12													
14200	13													
14300	14													
15000	15													
16000	16													
17100	17													
17200	18													
17400	19													

EXHIBIT XI

Table 60

OPERATING COSTS OF REIMBURSABLE PROGRAMS 1966-68

Community College	Year	Total Program FTE Inc. Out-of-State	Reimbursable FTE	Reimbursable Program Operating Costs	Operating Cost Per FTE
BLUE MOUNTAIN	1966-67	596.5	591.2	$ 728,790	$ 1,222
	1967-68	741.4	735.3	893,157	1,205
CENTRAL OREGON	1966-67	612.8	597.9	812,556	1,326
	1967-68	645.6	605.5	949,388	1,471
CLACKAMAS	1966-67	125.7	121.9	149,073	1,186
	1967-68	487.2	484.1	559,107	1,148
CLATSOP	1966-67	506.6	499.4	616,020	1,216
	1967-68	633.6	610.7	755,766	1,193
LANE	1966-67	2,169.5	2,164.5	1,914,318	882
	1967-68	2,677.0	2,655.5	2,342,052	875
LINN-BENTON	1967-68	242.3	242.3	199,153	822
MT. HOOD	1966-67	409.6	406.6	606,795	1,481
	1967-68	1,142.2	1,139.2	1,171,895	1,026
PORTLAND	1966-67	3,623.3	3,623.3	2,531,400	699
	1967-68	4,413.1	4,388.2	2,924,766	663
SALEM	1966-67	702.6	701.9	603,474	859
	1967-68	877.1	876.5	839,233	957
SOUTHWESTERN	1966-67	762.0	761.2	799,936	1,050
	1967-68	790.9	786.3	1,015,348	1,284
TREASURE VALLEY	1966-67	1,189.1	1,020.7	1,163,816	979
	1967-68	1,198.8	924.8	1,177,744	982
UMPQUA	1966-67	430.7	430.7	348,045	808
	1967-68	550.5	549.6	556,320	1,011
STATE TOTAL	1966-67	11,128.4	10,919.3	$10,274,223	$ 923
	1967-68	14,399.7	13,998.0	$13,383,929	$ 929

TENNESSEE

GENERAL PROGRAM GOALS

Tennessee's Division of Vocational Education has established the following student enrollment objectives for 1974. The percentage figures indicate the proportions of enrollment by various elements of the population in at least one vocational education course.

1. 35 percent of rural secondary students; 65 percent of urban secondary students;
2. 28.7 percent of rural and 71.3 percent of urban secondary students (in post-secondary facilities);
3. 10.5 percent secondary, 4.7 percent post-secondary, and 5.0 percent adults of the disadvantaged population;
4. .58 percent secondary and .19 percent post-secondary of the handicapped population;
5. 2.3 percent of the population, age 16-64 (in adult vocational education).

In Tennessee, actual enrollment projections by program and grade level could not be obtained for 1975. While in its State Plan, Tennessee had made projections for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of student enrollment by program and grade level could be provided. (Tables A-21 and A-22 show these percentages.) The tables show the estimated changes of enrollment in vocational education programs and grade levels that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

In the past, the State of Tennessee had no procedure for determining the total cost of each vocational course offered in local school districts. For the fiscal year 1970-71, however, Tennessee has developed a form which will analyze costs for the following program expenditures: (1) Teacher Salaries, (2) Other Salaries, (3) Travel, (4) Minor Equipment, and (5) Instructional Supplies. The title of the form is "A Local Plan and Application for Approved and Financial Support for Secondary Programs." Although the completion of these forms will provide only a partial account of vocational education expenditures by local education agencies, they will help to move the state in the direction of identifying more completely its vocational education costs.

DETERMINATION OF EXCESS COST

The State of Tennessee has made no attempt to identify the excess costs inherent in its vocational education programs. Although the Division of Vocational Education is aware of the existence of excess costs in vocational education programs, it has no specific plans to determine these costs in the future.

150

Table A-21

Percent of Vocational Education Enrollment in Tennessee by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	41.70	N.A.*	18.96	36.68	.13	17.79	18.79	.00	10.00
Distributive	6.01	5.00	5.46	6.54	5.38	5.90	8.27	7.69	8.00
Health	.18	4.12	2.33	.22	5.16	2.95	.31	8.19	4.00
Home Economics (Gainful)	.00	.15	.80	.11	1.55	.90	.00	4.27	2.00
Home Economics (Useful)	1.59	76.47	42.49	1.63	67.30	37.90	.96	52.35	25.00
Office	1.42	7.79	4.90	1.55	14.22	8.55	3.19	19.89	11.00
Technical	2.47	.15	1.20	5.57	.61	2.83	17.72	1.22	10.00
Trade & Industry	46.54	5.15	23.94	47.69	5.65	24.47	50.76	6.39	30.00

*Data not available.

Table A-22

Percent of Vocational Education Enrollment in Tennessee by Grade Level and Sex,
for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	15.93	26.02	21.45	13.39	23.10	18.75	11.71	21.28	16.87
Tenth	11.68	20.44	16.47	13.32	17.95	15.87	11.65	16.54	14.29
Eleventh	12.39	11.76	12.05	15.15	17.45	16.43	13.26	16.08	14.78
Twelfth	18.92	13.53	15.98	13.96	14.77	14.41	12.21	13.61	12.97
First Year College	5.13	4.56	4.82	8.84	6.04	7.29	8.49	6.11	7.21
Second Year College	1.06	.15	.56	2.01	.57	1.21	1.93	.58	1.20
Adult	34.11	23.38	28.27	32.96	19.91	25.75	31.64	20.14	25.44
Special Needs	.53	.15	.32	.37	.22	.29	9.11	5.66	7.25

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Secondary Schools

Following Federal guidelines, Tennessee assigns weight factors, subject to change annually, to each of the four basic criteria:

1. Manpower Needs and Job Opportunities
   Due to the size of the labor force and the demographic similarity of metropolitan areas, the five counties having the largest labor force are classified in Group A, and are assigned the weight of greatest value. The remaining counties are grouped into four classes, designated B, C, D and E, with weights assigned in descending order.

2. Vocational Education Needs
   Due to the similarity in size of the secondary school populations within the metropolitan counties, the first five counties, with the largest number of secondary students, are designated Group A counties. The remaining ninety counties are divided into four groups, each of which is assigned a weight appropriate to its classification.

3. Relative Ability to Pay
   The relative ability to pay, by counties, is determined by an adjusted formula under the Minimum Foundation Program. The formula provides a listing of the ninety-five counties by relative position; i.e., the county having the highest relative ability to pay in ranked Number 1, and the others are ranked in descending order of relative ability. All ninety-five counties are classified in five groups, by mathematical calculation, and each is assigned a weight factor in ascending order from Group A to Group E. Due consideration is given to assigning additional weight to economically depressed counties and those serving high-employment areas.

4. Excess Costs
   As has been said above, Tennessee makes no determination of excess costs. The counties are classified into five groups and each is given equal weight.

   In order to establish relative priorities for funding, a county's weight factor for each of the four criteria is multiplied by the state assigned weight factor. The total weight of the application is the sum of the products of that calculation. (This is shown clearly in the format below.)

After the total weights for all the counties have been determined, the counties are ranked and classified into five groups. Group A counties have the highest relative priority and Group E counties the lowest.

The percentage amount of Federal funds for support of the total cost of the programs, services, and activities proposed in local applications is determined as follows:

1. A base reimbursement scale is used which establishes the maximum amount that may be earned by a given system for a given type of vocational education program.

2. Each of the instructional programs (agriculture, distribution, health, home economics for gainful employment, home economics for useful employment, office occupations, technical, and trades and industry) is assigned a percentage factor which is applied to the base reimbursement scale. This determines the amount a given vocational education program may earn for a given amount of time.

3. Each group of counties, as determined by a composite rating (including the four Federal criteria) is assigned a percentage factor which is applied to the program weight that a given vocational education program may earn. This determines the amount for which a system within a specific county group may be reimbursed for approved expenditures for a given program.

4. This amount is added to the base reimbursement scale. Added thereto is the appropriate amount the system would receive for salary payments, based on teacher training and experience, under the Minimum Foundation Program.

Following is the format that is used to determine the relative priority of local applications in secondary schools:

Criteria	Weight Factor Assigned by State		County Weight	County Group		Relative Weight of Application
Manpower Needs and Job Opportunities	25	X	5	A		125
			4	B		100
			3	C	=	75
			2	D		50
			1	E		25
Vocational Education Needs	35	X	5	A		175
			4	B		140
			3	C		105
			2	D		70
			1	E		35
Relative Ability to Pay	35		5	A		175
			4	B		140
			3	C		105
			4	D		70
			1	E		35
Excess Costs	5	X	1	A		5
			1	B		5
			1	C		5
			1	D		5
			1	E		5
			TOTAL WEIGHT			

Post-Secondary Schools

The State of Tennessee has been divided by the State Planning Commission into eight regions, to encourage interlock cooperation and for purposes of comprehensive planning and development. Two of the four criteria, manpower needs and job opportunities and vocational education needs, are assigned a state weight factor, subject to annual adjustment.

For manpower needs and job opportunities, the percent of the total state labor force of each planning district is applied to the state assigned weight factor. This produces a factor for each district. For vocational education needs, the percent of the total state post-secondary vocational education needs of each planning district is applied to the state assigned factor. This also provides a factor for each district. The sum of the two weight factors for each planning district is then related to the sum of the two state assigned weight factors, and the result is the percent by which the Federal allocation of funds for each district is determined.

After the relative Federal funds have been allotted to each district, the estimated number of persons to be served at the post-secondary level by each institution is related to the estimated state total. The approximate cost per student for each type of institution is estimated on the basis of prior experience, numbers served, and the amount of available resources. Each type of institution is then allocated an amount equal to the estimated cost per student times the estimated number to be served by the institution.

TEXAS

GENERAL PROGRAM GOALS

Goals set forth by the Texas Division of Vocational Education clearly indicate an expansion in programs and an increase in enrollment in vocational education courses. Under Senate Bill 261, effective 1 September 1969, there was established an Advisory Council to the State Board of Vocational Education. Thus the State Technical-Vocational Education Act of 1969 gave new status to occupational-vocational-technical education. Further, House Bill 263, which shortly followed Senate Bill 261, provided added funding for certain vocational education programs not previously supported by the Texas Minimum Foundation Plan.

Extent of the expansion of the vocational education program in Texas is summarized in the Long Range Program Plan Provisions of the Texas State Plan. At the secondary levels there will be an enlargement of the number of instructional programs, by 1974, from the present 4,568 to 6,462, an increase of 41 percent over a five-year period.

As adult education is conducted in conjunction with the secondary level, expansion here will help meet the needs of the adult population as well as those of high school students.

The needs of the handicapped and disadvantaged are being met by a special project, the Coordinated Vocational-Academic Education Program. New programs offered in this area have increased rapidly, year by year.

A 1968 report of the Texas Advisory Committee on Vocational Education, entitled, "Guidelines for the Development of Vocational Education in Texas Through 1975-76," mentions the following general goals:

1. Enlarging the vocational education program so that it can meet the needs of the rapidly growing population;
2. Redirecting the occupational education program from the traditional rural emphasis to realistic programs based on the needs of a predominantly urban society;
3. Raising state productivity through the improvement of the quality and range of occupational education available in the public schools;
4. Coordinating vocational program offerings with employment opportunities at the public school level;
5. Increasing the support for vocational education by having the State of Texas assume a greater share of the costs.

Student enrollment objectives have been established for the year 1974. Figures show the proportions of various population elements expected to be enrolled in at least one vocational education course:

1. 41.4 percent of secondary students;
2. 2.5 percent of students, age 15-24 (in post-secondary facilities);

3. 6.9 percent secondary, .3 percent post-secondary, and 12.3 percent adults of the disadvantaged populations;

4. 3.2 percent secondary, 3.2 percent post-secondary, and 3.2 percent adults of the handicapped population;

5. 3.6 percent of the population, age 16-64 (in adult vocational education).

In Texas, projections of actual enrollments by program and grade level could not be obtained for 1975. Although projections were made for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of student enrollment by program and grade level could be obtained. Tables A-23 and A-24 show the estimated changes of enrollment that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

Texas has devised a tentative procedure for conducting cost analysis in vocational education. However, no attempt was made by the Division of Vocational Education to utilize cost analysis data as a basis for funding local district vocational education programs.

The Division has collected certain cost data for existing programs in the fiscal year 1966-67, as reported in the local districts' applications for program approval and funding. In a worksheet showing "Annual Cost of Vocational Education in Public High Schools Based on 1966-67 School Year," a method is shown for calculating (1) cost per teacher-unit, and (2) student cost per year for each program. Under this system, the costs per teacher-unit are equivalent to the following expenditures reported in the local district application:

1. 10 percent of the replacement value of equipment;

2. 7 percent of the replacement value of facilities;

3. 25 percent of costs of state textbooks;

4. 100 percent of total cost of instructional materials;

5. 100 percent of total cost of consumable supplies;

6. Prorated portion of maintenance and operation costs (includes repair and maintenance of facilities and equipment, utilities, janitorial costs, communication and office supplies);

7. 100 percent of total cost of teacher salaries and travel.

Student cost per year is obtained by dividing the teacher-unit cost, as determined by the above method, by the total enrollment.

Table A-23

Percent of Vocational Education Enrollment in Texas by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	72.78	.05	45.52	61.06	.00	29.92	56.00	.00	25.00
Distributive	6.25	7.42	6.69	9.02	6.38	7.70	10.00	6.00	8.00
Health	.08	3.05	1.20	.33	3.47	1.93	1.00	4.00	2.00
Home Economics (Gainful)	.03	.75	.30	1.68	78.53	40.92	3.00	79.00	40.92
Home Economics (Useful)	1.07	79.25	30.37	N.A.*	N.A.*	N.A.*	N.A.*	N.A.*	N.A.*
Office	.59	6.29	2.73	3.57	9.14	6.39	4.00	11.00	8.00
Technical	4.25	1.41	3.18	3.08	.47	1.77	3.00	.00	1.00
Trade & Industry	14.95	1.78	10.01	21.26	1.93	11.39	23.00	2.00	12.00

*Data not available.

Table A-24

Percent of Vocational Education Enrollment in Texas by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	5.04	21.27	11.12	9.19	21.78	15.61	8.41	19.00	13.94
Tenth	5.24	13.10	8.18	7.42	11.82	9.67	6.78	10.26	8.60
Eleventh	6.05	11.78	8.20	9.81	12.72	11.29	8.92	11.07	10.05
Twelfth	5.15	14.46	8.64	7.71	14.34	11.09	7.04	12.47	9.88
First Year College	2.81	5.40	3.78	3.82	3.15	3.48	7.17	9.44	8.36
Second Year College	N.A.*	N.A.*	N.A.*	3.24	1.26	2.23	.82	4.17	2.57
Adult	73.94	32.77	58.51	55.19	33.10	43.97	50.21	28.76	39.01
Special Needs	.90	.10	.83	2.13	1.02	1.57	10.63	4.83	7.60

*Data not available.

DETERMINATION OF EXCESS COST

Funding of vocational education in Texas is managed by two separate Divisions within the State Department of Education. The Division of Finance administers funds for salaries and current operating costs. On the basis of applications filed by local districts, the Division funds the following items:

1. The annual salaries of teachers, counselors and supervisors authorized for employment under the Minimum Foundation Program, in the amount prescribed by the "Minimum Salary Schedule for Texas Classroom Teachers."
2. A current operating cost allotment of $660, plus $400 for the direct benefit and improvement of instructional programs for which the teacher unit is allocated. Eligible expenditures include the cost of teaching supplies, instructional materials, technical libraries, and minor instructional equipment.

The Division of Program Funds Management administers funds for travel (as prescribed by the "Utilization of Travel Funds Schedule") and funds for instructional equipment (upon completion of special contract forms).

The state and Federal shares of eligible costs authorized by legislative and administrative acts, as distributed by both the Division of Finance and the Division of Programs Funds Management, are determined by the criteria set forth in the State Plan, Section 3.27 (refer to the following section on Allocation of Vocational Education Funds).

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Allocation of funds for vocational education programs in Texas is based on two major formulas. The first relates to state provisions under the Minimum Foundation Program and provides funds for teachers' salaries. The statewide Minimum Salary Schedule under the Foundation Program receives, on an average, 80 percent state and 20 percent local contributions. Minimum Foundation Program funds are distributed to local districts according to the number of teacher classroom units, and the local district's relative ability to pay. The ability to pay factor is used to equalize local district effort in terms of assessed valuation, scholastic population, and income of the county.

The second formula relates specifically to allocation criteria mandated by the Vocational Education Education Amendments of 1968. Texas has developed a formula which incorporates the following four Federal criteria: (1) Manpower Needs and Job Opportunities; (2) Vocational Education Needs; (3) Relative Ability to Pay; and (4) Relative Cost of Programs, Services and Activities.

The Division of Vocational Education reviews each local district's annual program plan and on the basis of the information provided in that plan, assigns weights to each of the above criteria. The state weight factors thus obtained are then summed and averaged for each district and, upon comparison of the district average weight with the state average weight, the Division determines the reimbursable percentage of the total costs for each district.

An example adapted from the Texas State Plan will illustrate this allocation method:

> The first step is to determine the statewide Average Weighted Factor, with which each district is to be compared. The Average Weighted Factor is a product of two measurements: (1) State Weight, and (2) State Basic Factor. For secondary and post-secondary programs the Board of Vocational Education fixes the state average basic factor at 6, and the weight factor varies from 0 to 6. The calculation is made as follows:

	State Weight	State Basic Factor	Weighted State Factor
Manpower Needs and Job Opportunities	5	6	30
Vocational Education Needs	6	6	36
Relative Ability to Pay	4	6	24
Relative Cost of Programs, Services and Activities	2	6	12
			102

> 102 / 4 = 25.5 = Average State Weighted Factor
>
> Unrefined rate of reimbursement to schools = 100%.

> The Average State Weighted Factor serves as a fixed base figure for the fiscal year. However, the Average Local Weighted Factors, calculated by the same method as the State Average Weighted Factor, are different for each district. The local district's allotment is determined by means of a simple ratio and proportion calculation involving the State and Local factors.

The following example from the Texas State Plan illustrates the calculation of the Average Local Weighted Factor, and an appropriation of funds to School "Z":

> School Z requests assistance in providing vocational education opportunities for identified handicapped and/or disadvantaged persons, for programs that are exemplary and/or pilot, coop G programs, and consumer and homemaker education programs. The estimated cost of these programs is $122,000.
>
> Manpower needs and job opportunities in the area served by School Z are considered to be slightly above average; the vocational needs of students to be served are deemed to be vital and urgent; the ability of the school district to pay, considering possible revenue sources, is quite limited, due to a large concentration of state-owned, non-taxable property; programs, services and activities are at a peak cost because of excessive interest rates and the inflated costs of labor and materials.

	State Weight	School Factor	Weighted School Factor
Manpower Needs and Job Opportunities	5	4	20
Vocational Education Needs	6	6	36
Relative Ability to Pay	4	6	24
Relative Cost of Programs, Services and Activities	2	6	12
			92

92 / 4 = 23 = Average Local Weighted Factor

State Average Weighted Factor = 25.5

Average Weighted Factor for Local Education Agency = 23

Thus, the Weighted Factor for this school is 2.5 below the Weighted State Factor.

Therefore: $25.5 : 1.00 = 23 : x$
$25.5x = 23$
$x = .9 = 90\%$

Total reimbursement from state appropriations to School Z will be 90% of their request for $122,000, or $109,800. The Local Education Agency, School Z, will fund the remaining 10%, or $12,200.

UTAH

GENERAL PROGRAM GOALS

Uath's State Plan for Vocational and Technical Education establishes the following student enrollment objectives for 1974. The list shows the proportions of various elements of the population expected to be enrolled in at least one vocational education course during the target year:

1. 75 percent of secondary school students;
2. 25 percent of the population, age 15-24 (in post-secondary facilities);
3. 50 percent secondary, 65 percent post-secondary, and 75 percent adult students of the disadvantaged population;
4. 50 percent secondary, 65 percent post-secondary, and 75 percent adults of the handicapped population;
5. 10 percent of the population, age 16-64 (in adult vocational education).

In Utah, projections of actual enrollment could not be obtained for 1975. Although the Utah State Plan made projections for 1974, these showed only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, in order to reflect the probable enrollment figures more accurately, percentage projections were made by program and grade level. Tables A-25 and A-26 show the estimated changes in enrollment that will have occurred by 1975 in terms of percent change.

COST ANALYSIS

Secondary Schools

For some years, Utah's Office of Vocational and Technical Education has used various means of determining the total cost of every vocational course offered in local school districts. In recent years, reliance was placed on the report forms VEF 116 and VEF 116A (see Exhibit XII), which every secondary school was required yearly to complete.

Form VEF 116 identifies: (1) total expenditures for equipment, including the cost of replacing worn-out equipment as well as capital outlay for new items; and (2) the total cost for each course of ancillary or administrative services, including services of local directors and supervisors, guidance personnel and aids, and other related expenses.

Form 116A reports instructional salary and travel costs entailed by each course and the cost of supplies. The sum of the costs reported on these two forms was assumed to represent the total cost of each specific vocational course offered by the reporting school.

The same reporting method was used, through fiscal 1969, to determine the costs of adult courses offered in secondary schools. In fiscal

Table A-25

Percent of Vocational Education Enrollment in Utah by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	18.50	.26	7.59	18.53	.50	8.27	17.00	1.00	8.00
Distributive	4.33	6.88	5.85	9.32	10.00	9.69	13.00	15.00	14.00
Health	.00	1.32	.79	.30	2.00	1.28	1.00	3.00	2.00
Home Economics (Gainful)	.00	1.59	.95	.43	3.00	1.78	1.00	3.00	3.00
Home Economics (Useful)	5.12	43.39	28.01	6.16	45.00	28.34	7.00	48.00	29.00
Office	25.59	43.92	36.55	22.36	36.00	30.27	19.00	26.00	23.00
Technical	4.72	.00	1.90	3.57	.10	1.61	3.00	1.00	2.00
Trade & Industry	41.73	2.65	18.35	39.33	3.00	18.76	39.00	3.00	19.00

Table A-26

Percent of Vocational Education Enrollment in Utah by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	7.48	7.67	7.59	4.71	5.22	5.00	2.00	4.00	3.00
Tenth	9.45	10.85	10.28	7.85	11.11	9.70	5.00	13.00	8.00
Eleventh	11.81	17.99	15.51	12.42	13.60	13.09	14.00	9.00	9.00
Twelfth	20.47	26.46	24.05	25.53	25.18	25.33	35.00	23.00	28.00
First Year College	11.81	3.17	6.65	11.63	3.60	7.07	12.00	4.00	9.00
Second Year College	1.97	.00	.79	3.27	.60	1.75	5.00	1.00	4.00
Adult	36.61	33.33	34.65	27.35	34.68	31.51	17.00	36.00	29.00
Special Needs	.79	.53	.63	7.25	6.01	6.55	10.00	10.00	10.00

1970, a new form, VE 69-2, was introduced for reporting costs of adult courses (see Exhibit XIII). Section 10 of VE 69-2 requires the reporting school to estimate the costs of supervision, instruction, travel, equipment, supplies, and other expenses. In general, Form VE 69-2 consolidated the information provided by Forms VEF 116 and 116A.

Analysis of the new form, however, especially of Section 10, revealed that it did not produce the true total course cost, because it failed to include the indirect costs of fixed charges for plant maintenance and operation. Accordingly, Section 10 of Form VE 69-2 has been revised and in fiscal 1971 will require a report of costs following this schedule:

1. Supervision
2. Instructional salaries
3. Supplies
4. Travel and other
5. All other direct costs
6. Sub-total
7. Indirect costs (20% of sub-total)*
8. Equipment
9. Total expenditures

Post-Secondary Program

Costs of the post-secondary program have been determined in the past by means similar to those used for the secondary and adult programs. The form used was Trade-Tech Form 2 (see Exhibit XIV). However, this form also failed to reveal a true total course cost, and it has been decided that in fiscal 1971, post-secondary programs will report costs on the revised secondary and adult form, VE 69-2.

DETERMINATION OF EXCESS COST

Excess cost is defined in Utah as the difference between the actual total cost of a course and the revenue a district ordinarily can expect to receive from tuition, endowments, and state aid. Here, as in other cost analysis procedures, Form VE 69-2, with its revised Section 10, is the basic means of determining excess cost.

VE 69-2 is a six-part form. The first three parts are completed and submitted to the state office by the local district before the beginning of the budget year. In Section 10 of these three parts, the local district budgets what it believes will be the expenditures for the course. Also, the district estimates the amount of revenue it expects to receive in tuition, other local revenue, and state equalization aid. The projected revenues are totaled and compared with the estimated course cost, and the difference is determined to be the initial excess cost. To meet this cost, the local district requests other revenue.

Upon receipt of these initial estimates, the state office separates the courses into program packages and sends them to the appropriate program specialists, who verify the budget estimates. When the budgets are approved, the state office designates the amount and source of revenue for the initial funding. This information is confirmed on the pink copy of the budget form, which is returned to the submitting district.

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*The 20% indirect cost figure was determined by examining the indirect costs of the two vocational-technical colleges in Utah.

The last three parts of VE 69-2 are filed after completion of the course. Here the actual amounts spent for the courses are reported, along with the actual amount of local revenue received. The blue and green copies containing this information are sent to the state office, where a re-evaluation is made, and the agency decides on the extent to which it will reimburse the local district for the excess cost of the course. This amount is confirmed to the local district on the green copy of the form.

Utah administrators believe this system will enable the state to make accurate estimates of excess costs and will provide for a more dependable control over the spending of vocational education funds.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

In compliance with Federal regulations, the State of Utah has established a mechanism, based on the required criteria, for establishing priorities among districts for allocation of funds. Following is the form of the procedure used in 1969-1970, as prepared by the Utah Office of Vocational-Technical Education:

Manpower Needs and Job Opportunities

A Local Educational Agency (LEA) may receive up to a maximum of 50 points for this category determined on the following basis:

Criteria	Specified in Numbers	Weight Applied by State	TOTAL
Number unfilled job openings in locality	________X	1	=________
Number local job openings training to be provided for	________X	3	=________
Number State job openings training to be provided for	________X	2	=________
Number national job openings training provided for	________X	1	=________
Is training provided for a new occupational program in the LEA or for emerging jobs? (Circle the applicable answer and complete the total points for it.)		YES 10 x 2	=________
		NO 1 x 1	=________
Total count for this section of form			=________

The score for this section is determined by taking the total count for each LEA and spreading them from the lowest to the highest count. Actual point values are determined on the scale below:

Lowest Count			Highest Count
Lowest Quartile	2nd Lowest Quartile	2nd Highest Quartile	Highest Quartile
10 points	20 points	30 points	50 points

LEA's Point Value for Section ____________ .

Vocational Education Needs

A LEA may receive up to a maximum of 30 points for this category determined on the following basis:

Criteria	Specified in Numbers	Weight Applied by State	TOTAL
Number of students in grades 10-11-12.	* ________ X	1	= ________
Number of students in grades 13-14-15	* ________ X	1	= ________

*LEA's with total enrollments in grades listed of 1 to 1,000 multiplied by 3 then multiplied by weight factor; LEA's with total enrollments in grades listed of 1,001 to 4,000 multiply number by 2 then multiply by weight factor; LEA's with total enrollments in grades listed of 4,001 or over, multiply that number by weight factor.

Number of handicapped students in grades 10-11-12.	________ X	5	= ________
Number of handicapped students in grades 13-14-15.	________ X	5	= ________
Number of disadvantaged students in grades 10-11-12.	________ X	5	= ________
Number of disadvantaged students in grades 13-14-15	________ X	5	= ________
Number of unemployed youth (ages 14-21 inclusive) in locality	________ X	4	= ________

Total count for this section of form . . . . ________

LEA total counts for this section are spread from the lowest to the highest. The actual point values are determined on the basis of the following scale:

Lowest Count			Highest Count
Lowest Quartile	2nd Lowest Quartile	2nd Highest Quartile	Highest Quartile
5 points	10 points	20 points	30 points

LEA's Point Value for Section ____________________ .

Relative Ability to Pay

A LEA may receive up to a maximum of 10 points for this category determined on the following basis:

School Districts

			TOTAL
Is the local school district taxing to its limit of the basic state support leeway program (28 mills)?	Yes	1	=________
	No	0	=________

Has the local district taxed above the state basic program by vote of the people?

Taxed from 7+ to 10 mills	15	=________
Taxed from 3+ to 7 mills	9	=________
Taxed from 0 to 2 mills.	0	=________

Post-High School

Is the post-high school institution utilizing the maximum funding as authorized by legislation?	Yes	25	=________
	No	10	=________

Total count for this section of form . . . . ________

The score for this section is determined by taking the total count for each LEA and spreading them from the lowest total count to the highest total count.

Point values are determined by the scale below:

Lowest Count		Highest Count
Lowest 1/3	Middle 1/3	Highest 1/3
3 points	6 points	10 points

Excessive Costs

A LEA may receive up to a maximum of 10 points for this category based on the following:

Does the LEA have excessive construction costs due to type of ground, isolated area, etc.? (Will this be reflected as special allowances in contract or bid?)	Yes	12	=________
	No	0	=________

Does the LEA have to pay excessive salaries due to isolation, or special programs? (Determined if LEA's salary schedule is above the state average.)

6+% and over	15	=________
3+ to 6% above state average	3	=________

	1 to 3% above state average	3	=________
Does the LEA have excessive transportation costs not reimbursed by the special school bus or transportation allowance?	Yes	6	=________
	No	0	=________

Total Count for this section of form . . . . ________

The score for this section is determined by taking the total count for each LEA and spreading them from the lowest to the highest. Point values are determined by the scale below:

Lowest Count		Highest Count
Lowest 1/3	Middle 1/3	Highest 1/3
3 points	6 points	10 points

LEA's Point Value for Section ______________ .

Basis for Allocation of Federal Funds

After the point value for each LEA is determined for each of the 4 sections above, the total points for LEA are determined by adding the 4 section points together. This becomes the LEA's total point value. The point value of each LEA is then spread out ranging from the lowest point value to the highest point value.

This allocation procedure has been altered slightly for 1970-1971. Each category (manpower, vocational needs, etc.) has been reorganized on the form so that the state office is not required to break the district's calculated point scores into "Highest Quartile," "Second Highest Quartile," etc., and then to assign actual point values; rather, each district now can calculate directly the actual point value for each category, can total these values and send the total figure to the state. The state office then takes these totals and breaks them out into the Quartiles (highest, third, second, lowest) for appropriate allocation of funds.

Form No. VEF 116

EXHIBIT XII

FINAL REPORT

High School Vocational Education Programs
Expenditures for Equipment and Ancillary
1969-70

District ______________________ Date ______________________

EQUIPMENT

Course	Total Expenditures
1	2
A. Distributive Ed.	$
B. Home Ec. (Useful)	
C. Home Ec. (Gainful)	
D. Office Occupations	
E. Health Occupations	
F. Vo-Ag	
G. Ag Related	
H. Trade & Industry	
I. Voc. Services	
J. Other	
K. Total	$

Ancillary Services

Course	Total Expenditures
3	4
L. Local Director	$
M. Local Supervision	
N. Guidance Personnel	
O. Guidance Aids	
P. Other	
Q. Total	$

I certify that the information on pages 1 and 2 of Form No. 116 is true and correct to the best of my knowledge and belief.

Signed:______________________________ Date:____________________
Local Agency Authorized Official

HIGH SCHOOL VOCATIONAL EDUCATION PROGRAMS
EXPENDITURES AND ENROLLMENTS
1969-70

Form VEF 116A
Page 2

District ______________________________ Date ______________________

		Expenditures (Total Cost)					Enrollments							
Name of Course and Code*	Name of Teacher(s)	Salary	Supplies	Travel	Teacher Training	Total (Columns 3-6)	SEX	9th Grade	10th Grade	11th Grade	12th Grade	Spec. Needs ***	Total (Col. 9-13)	No. of Completions**
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
							M							
							F							
							M							
							F							
							M							
							F							
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							M							
							F							
							M							
							F							
							M							
							F							

* Use titles and numbers listed on page 3--put "C" in front of co-op classes.

** Persons who have completed vocational course--graduated and/or left school as of May 1, 1970.

*** Persons who have academic, socioeconomic, or ~~other~~ handicaps that prevent them from succeeding in regular vocational programs. See page 4 of Utah State Plan.

SMALL D FOR DISADVANTAGED IN COLUMN 13 WITH NUMBER ENROLLEES
" H " HANDICAPPED " " " " " "

EXHIBIT XIII

Complete 5 and send 3 copies to State Board for approval. When program is complete, fill in final three copies and submit two copies. Additional instructions on back.

THE UTAH STATE BOARD FOR VOCATIONAL EDUCATION
1400 UNIVERSITY CLUB BUILDING
136 East South Temple, Salt Lake City, Utah 84111
BUDGET / REIMBURSEMENT APPLICATION

VE 69 2

1. District/Institution	2. School/Institution	3. City	4. Identification No.

5. Vocational Section ("X" appropriate box)

- *Agriculture* ☐
- *Distributive* ☐
- *Guidance* ☐
- *Health Occupations* ☐
- *Home Economics (Gainful)* ☐
- *Home Economics (Useful)* ☐
- *Local Director* ☐
- *Local Supervision* ☐
- *Office Occupations* ☐
- *Trades & Industry* ☐
- *Other* ☐

6. Level of Program

- *Adult* ☐
- *Post-Secondary* ☐
- *High School* ☐
- *Jr. High* ☐
- *Elementary* ☐
- *Other* ☐

7. Type of Program

- *Regular* ☐
- *Exemplary* ☐
- *Pilot* ☐
- *Handicapped* ☐
- *Disadvantaged* ☐
- *Other* ☐

8. Kind of Instruction

- *Preparatory* ☐
- *Supplementary* ☐
- *Cooperative* ☐
- *Apprenticeship* ☐
- *Other* ☐

9.

Period(s)	COURSE TITLE	Estimated Enrollment		Office of Education Number	Responsible Instructor
		M	F		
Before School					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
After School					
Adult					

10. ESTIMATED COST DATA [see revised section [illegible] and page]
(Include total cost of program regardless of source of funds.)

	Local Participation	Requested Other Funds	Total	STATE OFFICE USE ONLY
Supervision	$	$	$	
Instructional Salary				
Travel				
Equipment				
Supplies				
Other (Describe)				
Total			$	
Student Fees	▨	▨		
Balance Requested			$	

12. Number of weeks devoted to summer program:

13. Program Starts: Program Ends:

11. If program is adult (reference No. 6), is teacher from:
Business/Industry ☐ *Secondary School* ☐ *Post-Secondary School* ☐

No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program of activity receiving Federal assistance.

THE ABOVE PROGRAM WILL BE CONDUCTED IN ACCORDANCE WITH THE STATE PLAN REQUIREMENTS.

14. Signed ______________________ Date ______________
Local Agency Authorized Official

STATE OFFICE USE ONLY

Approved ______________________ Date ______________

Date Received ______________________ Fiscal Year ______________

Fund No. ______________

Amt. Encumbered $ ______________

10. Budget Estimate

Expenditures		Revenue			
Objects of Expenditure	Amount	Sources of Revenue	Amount	State Office use only	Final Review
Supervision 210.05	$	Local Tuition 12.00	$	$XXXXXX	
Inst. Salaries 210.09-220.21 or 1160.01*		All Other Local Revenue 11.00 or 15.00		XXXXXXX	
Supplies 270.00 or 1160.05*		Equalization Aid (Reg. DU) 31.01		XXXXXXX	
Travel and Other 280.00 or 1160.09*		Local Participation Sub Total		XXXXXXX	
All other Direct Costs		Requested Other Revenue		XXXXXXX	
Sub Total	☐	State Vocational Education Special DU's 31.24	XXXXXX		
		Other State Funds 31.00	XXXXXX		
Indirect Costs (20% of sub total)		Federal Funds 35.00	XXXXXX		
Equipment 1230.05		Encumbered Revenue State Board for Voc. Ed.	XXXXXX		
Total Expenditures	☐	Total Revenue	$		

* **Adult Vocational Program and Summer School**

Trade-Tech Form #2
Rev. 4/67

EXHIBIT XIV

POST SECONDARY
REPORT CONCERNING ALL REIMBURSABLE PROGRAMS OF VOCATIONAL AND/OR TECHNICAL EDUCATION CLASSES
UTAH STATE BOARD FOR VOCATIONAL EDUCATION

GB III Technology (Pink)
Voc. 63 & Other (White)
GB II Health Occupations (yellow)
School Year 19 19
(Summer, Fall, Winter, and Spring Quarters)

(Note: Instructions on back)

INSTITUTION ____________________

PROGRAM ☐ Preparatory
☐ Evening Trade Extension
☐ Adult - - Preparatory ☐ Supplemental ☐

____
Administrator's Signature

1. Class or Occupation 2. Date Class Began 4. Name of Instructor	3. Total Class Hours	Sex	5. Number Enrolled — Grade or Classification							TOTAL	6. Completed or Graduated	7. F.T.E.	8. No. Adv. Comm. Meetings	9. Salary 10. Supplies 11. Equipment 12. TOTAL	13. State Office Use REIMBURSEMENT (Do Not Write In This Space)
				11	12	13	14	Appr	Adlt						
1)		M										☒	☒	9. $	$
2)	3)	F												10. $	$
														11. $	$
4)									Total					12. $	$
1)		M										☒	☒	9. $	$
														10. $	$
2)	3)	F												11. $	$
4)									Total					12. $	$
1)		M										☒	☒	9. $	$
														10. $	$
2)	3)	F												11. $	$
4)									Total					12. $	$
1)		M										☒	☒	9. $	$
														10. $	$
2)	3)	F												11. $	$
4)									Total					12. $	$
1)		M										☒	☒	9. $	$
														10. $	$
2)	3)	F												11. $	$
4)									Total					12. $	$
1)		M										☒	☒	9. $	$
														10. $	$
2)	3)	F												11. $	$
4)									Total					12. $	$

WASHINGTON

GENERAL PROGRAM GOALS

Primary mission of Washington's educational system is to provide quality vocational education programs, services, and activities, realistic in terms of opportunities for gainful employment, for all persons in all communities. The programs must serve two general purposes:

1. Prepare persons to meet the demands of a dynamic labor market;
2. Help individuals develop their optimum career potentials.

The Washington State Plan has established the following student enrollment goals for 1974. Percentages represent the proportions of various elements of the population to be enrolled in at least one vocational education course in 1974.

1. 52 percent of secondary students;
2. 16 percent of post-secondary students;
3. 24,216 secondary students, 9,000 post-secondary students, and 700 adults of the disadvantaged population;
4. 50 percent of the secondary handicapped population, and .01 percent of handicapped students enrolled in vocational-technical school programs;
5. 8 percent of the population, age 16-64 (in adult vocational education).

In Washington, enrollment projections by program and grade level could not be obtained for 1975. Although the State Plan made projections for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. The tables show the estimated changes in enrollment which will have occurred by 1975, in terms of percent change.

COST ANALYSIS

The State of Washington has undertaken only recently to analyze the costs of its vocational education programs. Because three separate organizations are concerned with vocational education, several mechanisms have been developed for ascertaining program cost.

Within the office of the Superintendent of Public Instruction, the Vocational Education Department devised Form SPIV-1 for fiscal 1970 (see Exhibit XV). The Department has required the local districts to prepare this form for any new vocational programs or classes. However, the preparation of this form has not been required for programs already established by the districts.

Columns 2 and 3 of Form SPIV-1 provide space for a description of the cost and its estimated dollar expenditure. Items to be reported are as follows:

Table A-27

Percent of Vocational Education Enrollment in Washington by Program and Sex, for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	10.57	.09	5.29	11.24	.67	5.45	11.57	.96	5.53
Distributive	4.37	3.58	4.04	7.65	3.60	5.43	9.29	3.60	6.12
Health	.86	2.17	1.15	.64	7.18	4.22	.53	9.68	5.75
Home Economics (Gainful)	.00	1.23	.63	.26	1.55	.97	.39	1.67	1.14
Home Economics (Useful)	2.81	58.34	31.20	4.85	46.51	27.67	5.87	40.60	25.90
Office	5.67	24.88	15.53	13.48	34.10	24.77	17.38	38.71	29.40
Technical	10.28	1.89	6.11	13.32	1.68	6.95	14.79	1.60	7.37
Trade & Industry	65.34	7.82	36.05	48.56	4.71	24.54	40.18	3.18	18.79

Table A-28

Percent of Vocational Education Enrollment in Washington by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	2.36	18.85	10.77	N.A.*	13.15	7.20	N.A.*	15.08	8.82
Tenth	2.06	8.67	5.43	N.A.*	6.35	3.48	N.A.*	7.29	4.26
Eleventh	4.51	14.23	9.47	6.42	10.89	8.87	8.56	12.48	10.85
Twelfth	8.93	14.51	11.78	14.78	17.42	17.32	19.69	22.27	21.20
First Year College	22.96	8.58	15.63	25.34	15.96	20.20	13.00	7.04	9.52
Second Year College	.59	1.79	1.20	12.69	7.96	10.10	6.51	3.51	4.76
Adult	58.49	33.27	45.63	40.77	26.27	32.83	41.09**	22.78**	30.38**
Special Needs	.98	.19	.14	(8.76)	(8.71)	(8.73)	11.15	9.55	10.21

*Data not available

**Based upon 1974 State enrollment projections

1. Minor remodeling and equipment costs
2. Salaries
3. In-district travel
4. Out-of-district travel
5. Vocational direction and supervision salaries
6. Vocational guidance services
7. Research and development costs
8. Evaluation and follow-up costs
9. Curriculum up-dating and modification
10. Program promotion costs
11. Inter-district cooperation costs
12. Maintenance and operation costs

Because SPIV-1 looked only at the cost of new programs, the Vocational Education Department developed Form SPIV-4a, b, c for fiscal 1971 (see Exhibit XVI). These forms are to be completed in duplicate for the total district instructional program in each vocational area.

The Department has also developed Form SPIV-3 (see Exhibit XVII) for local districts' reporting estimated costs for special vocational projects. The Department hopes that, by means of this form and SPIV-4a, b, c, all vocational costs within its area of responsibility will be identified.

At the same time the Department of Vocational Education developed its forms for cost analysis, the Division of Vocational Education of the Coordinating Council for Occupational Education developed Forms DVE 70-5 and DVE 70-6 (see Exhibit XVIII). DVE 70-5 must be completed by all secondary districts providing vocational education programs, and DVE 70-6 by all post-secondary agencies providing vocational education programs. Comparison of these forms with those of the Vocational Education Department reveals a duplication of information by the local districts. Except for the post-secondary form, DVE 70-6, it would appear that the Division of Vocational Education could terminate its other procedures of cost analysis and gather the required information from the forms developed by the Vocational Education Department.

DETERMINATION OF EXCESS COST

Washington's State Plan specifies that in documenting excess costs it is necessary first to identify all costs. Once given a total cost figure, a comparison of that amount with an index figure (result of a compilation of weighted, guaranteed state support factors fixed by the legislature) establishes whether or not excess costs exist.

In the past, Washington has not had a procedure for ascertaining excess cost. However, for fiscal 1971, the Vocational Education Department created Form SPIV-4c (see Exhibit XVI). On this form, each district reports its anticipated total expenditures. If these are greater than income, the difference is the vocational education program's excess cost.

A mechanism for determining excess costs of post-secondary programs has not yet been established by the Vocational Department of the State Board of Community Colleges, nor has the Division of Vocational Education of the Coordinating Council for Occupational Education developed a procedure.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

In order to meet requirements for allocation of Federal vocational education funds to local districts, Washington established a weighted formula, based on the four criteria: manpower needs, vocational education needs, relative ability to pay, and excess cost. During the first year of use of this allocation system, the State discovered that limitations of data on manpower needs and excess costs required revision of the original formula. The revised formula for allocating Part B funds is based on five factors:

1. Pupil-teacher ratio
2. Ratio of certificated teachers to all certificated personnel in the district
3. Rate of teacher turnover
4. Full-Time Equivalent vocational students
5. Direction and supervision of vocational education

The formula was stated as follows:

$$\frac{\text{(Factors } 1+2+3\text{) X District FTE}}{\text{State FTE}} \text{ X State Funds} = \text{District Entitlement}$$

In addition to the computation above, districts were given a flat grant of $1,000 if they employed a Director of Vocational Education, and $500 if they employed a Supervisor of Vocational Education. These supervisory funds came out of the Part B general funds, as did the computed entitlement.

Form SPIV-1
(69-70)

EXHIBIT XV

State of Washington
SUPERINTENDENT OF PUBLIC INSTRUCTION
Vocational Education Department
P. O. Box 527 - Olympia

DOCUMENTATION OF COSTS FOR NEW VOCATIONAL PROGRAMS OR CLASSES

School Name______________________ District______________________
Name Number County

Proposed Starting Date of New Program or Class____________ Date of this Report____________

____
Signature of Superintendent or Designee

Signature and Title of Person Preparing this Report______________________

Fill in the appropriate information for EACH NEW VOCATIONAL CLASS of PROGRAM proposed. See other side of this form for information necessary for Column I, Items 2, 3, 4, 5 and 6. See attached "Suggested Categories of Excess Costs" for Column II. Please supply a total for Column III.

Instructions: Use SEPARATE SHEETS for each new program or class. Check One: Program ( ) Class ( )

Column I	Column II Cost Description	Column III Estimated Cost	State Office Use Only
Title of New Class or Program 1. ____________			a. Voc. Hrs. ____________
Vocational Instruction Area 2. ____________			b. Divided by 900 ____________ Equals FTE
Method (Co-op or Prep.) 3. ____________			c. Est. Cost ____________
Estimated Enrollment per year* 4. ____________			d. Divided by FTE ____________
Number of Class Hours** 5. ____________			e. ____________ Equals Per Pupil Cost
Daily Teacher Hours*** 6. ____________			f. ____________ Per Pupil F.V.F.

Form SPIV-1 (Continued)
(69-70)

Classification of Vocational Instruction Areas for Column I, Item 2

1. Agricultural Education
2. Distributive Education
3. Home Economics (Useful)
4. Home Economics (Gainful)
5. Business and Office Education
6. Technical Education
7. Trade and Industrial Education
8. Health Occupations Education
9. Approved Combination of Above (Indicate which ones)
10. Other (Please Identify)

Classification of Method for Column I, Item 3

Preparatory (Classroom oriented, classroom work/or job simulation, only incidental related paid work experience)

Cooperative (Paid work training in business or industry, related to and coordinated with classroom instruction)

*Definition of Enrollment for Column I, Item 4

Number of students enrolled and expected to complete at least the number of instruction hours designated in Column I, Item 5.

**Calculation of Classroom Contact Hours for Column I, Item 5

Classroom contact hours are normally 90 per semester and 180 per year. Where deviations of more than 15 minutes from a 60-minute classroom period exist (amounting to a 75-minute weekly deviation), please explain. In computing number of class hours, include shop, lab, or coordinated job-training stations where attendance is claimed. Do not include or claim for attendance purposes any more supervised job-training hours than are daily assigned to the teacher for coordination purposes. Example: Two classroom attendance periods of 50 minutes each, daily, are the equivalent of 360 hours per year. Assigned teacher-supervised lab, shop or coordination time of one, 50-minute period daily amounts to 180 hours per year, or a total of 540 class hours per year.

***Calculation of Daily Teacher Hours for Column I, Item 6

Record the total hours daily that the teacher is assigned to this class. Include classroom time, shop time, lab time, coordination time, home visitation time (explain time assigned in lieu of daily school time if appropriate and approved), or any other class-related time beyond the regular planning period normally provided for all other teaching personnel.

Form SPIV-4a

EXHIBIT XVI

State of Washington
SUPERINTENDENT OF PUBLIC INSTRUCTION
Vocational Education Department
P. O. Box 527 - Olympia

1970-71 BUDGET ESTIMATE FOR VOCATIONAL EDUCATION--Instructional (Program 28)

School District____
Name Number County

Signature of Superintendent or Designee______________________________

INSTRUCTIONS: Submit in duplicate one form for the total district instructional program in each area listed below. Due: June 15, 1970.

Check one: ____Agriculture; ____Business and Office; ____Distributive Education; ____Home and Family Life; ____Home Economics Wage Earning; ____Trade and Industry; ____Health Occupations; ____Technical

Line	State Acct. Code		Est. Exp. 1970-71
1	25-1	Teachers' Base Salaries	$
2	25-1	Extended Contractual Salaries	$
3	25-4	Employee Benefits	$
4	25-8	Travel (in and out of district, and per diem, if applicable)	$
5	25-5	Instructional Supplies	$
6	25-9	Capital Outlay--Equipment	$
7	73-9	Capital Outlay--Remodeling	$
8	90-	Payments to Other Districts	$
9		TOTALS:	$

Total Number of FTE Vocational Students____________________

$\frac{\text{Voc. Enrollment Hrs.}}{900}$ = Voc. FTE

Total Number of FTE Vocational Teachers____________________

Use a 6-hour day (include preparation and conference time) to compute FTE teachers

Budget Estimates for SPECIAL PROJECTS are not to be included on this form. (SPECIAL PROJECTS include Parts C, E, F, and G of Public Law 90-576.)

Form SPIV-4b

State of Washington
SUPERINTENDENT OF PUBLIC INSTRUCTION
Vocational Education Department
P. O. Box 527 - Olympia

1970-71 BUDGET ESTIMATE FOR VOCATIONAL EDUCATION--Ancillary Services (Program 28)

School District____
Name Number County

Signature of Superintendent or Designee____

INSTRUCTIONS: Submit in duplicate one form for total ancillary services for vocational education in the district. Due: June 15, 1970.

Line	State Acct. Code		Est. Exp. 1970-71
1		Number of full-time vocationally certified personnel designated for vocational direction and supervision. (Convert part-time into full-time)__________	
2	21-1	Salaries	$
3	21-8	Travel	$
4	21-4	Employee Benefits	$
5		Number of full-time vocationally certified personnel designated for vocational counseling and guidance. (Convert part-time into full-time)__________ Salaries:	
6	28-1	Building Counselor(s)	$
7	33-1	Districtwide Guidance	$
8	-4	Employee Benefits	$
9	12-	Evaluation/Follow-up	$
10	21-1 21-7	In-service Education (District sponsored stipends)	$
11	12-	Research Studies	$
12	12-	Public Information	$
13	21-	Curriculum Development	$
14	90-	Payments to Other Districts	$
15		*Pro-Rate Other Services Not Identifiable Specifically as Program 28	$
16			$
17		TOTAL:	$

udget estimates for special projects are not to be included on this form. (Special projects nclude Parts C. E. F. and G of Public Law 90-576.)

*Use instructions for pro-rating such services as administration, pupil services, transportation, maintenance, operation, textbook program, etc., included on SPI Form A-57-1.

Form SPIV-4c

State of Washington
SUPERINTENDENT OF PUBLIC INSTRUCTION
Vocational Education Department
P. O. Box 527 - Olympia

1970-71 BUDGET SUMMARY VOCATIONAL EDUCATION (Program 28)

School District____
Name -Number County

Signature of Superintendent or Designee________________________________

ANTICIPATED INCOME 1970-71

Basic Support for Students Enrolled in Vocational Education:

Enrollment Hrs. = Number of FTE Students
1080

Factors	No. of FTE's x Weight = $_______	
FTE	_____ x 1.0 ($371) = $____________	(1)
7-12	_____ x 0.3 ($371) = $____________	(2)
*Staff	_____ x 0.__($371) = $____________	(3)
**Sm. HS	_____ x 0.__($371) = $____________	(4)

Total Basic Support $____________ (5)

*Use weighting factor for 69-70 year
**Use weighting factor for 70-71 year

Weighted Vocational Support:

Enrollment Hrs. = FTE
900

No. of FTE_________ x $371 = $____________ (6)

Local Funds:

***Special Levy $____________ (7)

Lab or Shop Fees $____________ (8)

Other $____________ (9)

Payments from Other Districts $____________ (10)

TOTAL INCOME-------------$____________ (11)
(Total lines 5 through 10)

***Dollar amount from special levy that can be identified for use in vocational education.

ANTICIPATED EXPENDITURES 1970-71

Instructional-------$______________ (12)
(Total from Forms SPIV-4a)

Ancillary-----------$______________ (13)
(Total from Form SPIV-4b)

Local & State Funds $______________ (14)
(Indicated in Special Projects Submitted with Annual District-wide Plan 3/1/70, Form SPIV-3)

Total Expenditures $______________ (15)
(Total lines 12, 13, and 14)

INSTRUCTIONS: Submit in duplicate to the Office of the Director of Vocational Education, Superintendent of Public Instruction, P. O. Box 527, Olympia, Washington 98501.

DUE: June 15, 1970

SPIV-3

EXHIBIT XVII

BUDGET ESTIMATE FOR A SPECIAL PROJECT
Under Public Law 90-576

____Title of Project

____School District Name and Number

______________________________Name of Person in Charge of Vocational Education

A. (X one) ___Elementary ___Secondary ___VTI	B. (X one) ___Preparatory ___Supplementary
C. (X one): Type of Student to be Served: ___Regular ___Disadvantaged ___Handicapped	D. (X one only IF APPLICABLE to Useful Home & Family Life) ___Non-Depressed Area ___Depressed Area

E. (X one IF APPLICABLE)
___Contracted Instruction with private schools
___Research Grant
___Construction (Area School)
___Construction (Residential)
___Exemplary
___Operation (Residential)
___Cooperative (Special)
___Work-Study

F.

State Accounting Code	OBJECT OF EXPENDITURE	Total Amount	Local & State Exp.	Federal Request
		Column 1 minus	Column 2 =	Column 3
1.	INSTRUCTIONAL COSTS Total	$	$	$
2. 25-1 & 4	Salaries & fringe benefits			
3. 25-5	Materials & supplies . . .			
4. 25-8	Travel			
5. 66-7	Rental of space			
6.	Other services (Maintenance & Operation)			
7.	INSTRUCTIONAL EQUIPMENT Total	$		
8. 25-9	Major ($100 or more per unit			
9. 25-9	Minor (less than $100 per unit)			
10. 25-7	Rental			
11. 25-7	Repairs & maintenance. . .			
12.	SUPPORTING SERVICES Total	$		
13. 28-1 & 4	Guidance & Counseling . .			
14. (Code according to work area)	*Student Compensation . . .			
15.	*Other (Student Trans., Liability Ins.,etc)			
16. 73-9	CONSTRUCTION	$		
17.	ANCILLARY SERVICES Total	$		
18.	Supervision & Direction			
19. 21-1	Salaries & Benefits . .			
20. 21-8	Travel			
21. 12	Evaluation/Follow-up . . .			
22. 12	Curriculum Development . .			
23. 12	Public Information	$		
	TOTAL	$		

*Applicable only if the expenditures are to special cooperative Work Experience (Part G) or Work Study (Part H) programs

For State Office Use Only
___Fund ___Approp.
A B C D E F1 F2 G H
Project____________________
Approved by____________________

EXHIBIT XVIII

INSTRUCTIONS FOR COMPLETING
EXPENDITURES REPORT AND CLAIM FOR REIMBURSEMENT
UNDER P.L. 90-576, FORM DVE-70-5

GENERAL INSTRUCTIONS

1. Form DVE-70-5 is to be used only by local school districts.

2. As many separate reports of expenditures and/or claims for reimbursements should be submitted as is necessary to avoid conflicting classifications of the programs, services, and/or activities described in sections A through E, and to establish complete reporting of all expenditures for any/all programs, services and/or activities. (Include total vocational program whether funded by state or federal, except as in Item 3, below.)

3. Form DVE-70-5 serves a dual purpose: (1) for requesting or claiming payment of federal vocational funds within the predetermined allotments; and (2) for reporting all expenditures for all vocational education during the fiscal year ending June 30, exclusive of MDTA or direct USOE special grants.

   Requests or claims for payment or reimbursement from funds under P.L. 90-576 should be made as soon as incurred expenses are known and can be documented, but no later than June 15. Reimbursements can be made as soon as funds are available.

   The completed reports of all expenditures for vocational education programs, services, and activities are due in the Office of Program Administration, State Division of Vocational Education, by September 18. This presupposes that the complete set of reports will be in the Office of the Director of Vocational Education, Superintendent of Public Instruction, by September 4. These reports provide the basis for matching and overmatching of state and local funds with federal funds.

4. The certification of each report must be signed by the District Superintendent, or a designee whose signature has been authorized, as the local official responsible for certifying accuracy and completeness of the report(s) or claim(s).

   Full documentation of the complete report of expenditures must be maintained locally and need not be attached to the Form DVE-70-5 when it is submitted. The locally maintained documentation of expenditures satisfies the provisions of the Washington State Plan for Vocational Education, Part I, paragraph 2.5--AUDITS.

5. For more detailed instructions, refer to the full text of Instructions for Completing Expenditures Report and Claim for Reimbursement Under P.L. 90-576, Form DVE-70-5a.

Form DVE-70-5

State of Washington
Coordinating Council for Occupational Education
DIVISION OF VOCATIONAL EDUCATION
P. O. Box 248, Olympia 98501

Fund	Approp	Program	Obj	Project

A B C D E F1 F2 G H
Project___________
Approved by___________

CLAIMANT
County:___________
School District No.___________
School District Name___________
____
Address___________

EXPENDITURES REPORT
AND CLAIM FOR REIMBURSEMENT
UNDER P.L. 90-576
Fiscal Year Ending June 30, 19____

This report/claim covers the period beginning___________ & ending___________

A. (X one)
___Elementary: ___Secondary; ___VTI

B. (X one)
___Preparatory; ___Supplementary

C. (X one) Type of students served:
___Regular;___Disadvantaged;___Handicapped

D. (X one only IF APPLICABLE to H&FL)
___Non-depressed areas;___Depressed areas

E. (X one if applicable)
___Contract with private schools
___Research Grant
___Construction (Area School)
___Construction (Residential
___Operation (Residential)
___Cooperative(Special)
___Work-Study
___Exemplary

F. OBJECTS OF EXPENDITURES	REPORT OF ALL EXPENDITURES	CLAIM FOR FED. FUNDS REQUESTED
INSTRUCTIONAL COSTS	//////////////////////	//////////////////////
1. Salaries & fringe benefits.	$	$
2. Materials & supplies.		
3. Travel.		
4. Rental of space		
5. Other services.		
INSTRUCTIONAL EQUIPMENT	//////////////////////	//////////////////////
6. *Major ($100 or more per unit) . . .	$	$
7. Minor (less than $100 per unit) . .		
8. Rental.		
9. **Repairs & Maintenance		
SUPPORTING SERVICES	//////////////////////	//////////////////////
10. Guidance & Counseling	$	$
11. #Employer Reimbursement.		
12. #Student Service		
13. #Student Compensation.		
14. Other		
15. CONSTRUCTION	$	$
16. ANCILLARY SERVICES	$	$
17. ALLOCATED UNDISTRIBUTED COSTS (Program 00)	$	$//////////////////////
TOTAL	$	$

*Attach inventory report
**Attach maintenance report (use inventory report form for itemizing)
#Applicable only if expenditures are for special cooperative work-experience or work-study programs.

I hereby certify under penalty of perjury that the items and totals listed herein are proper charges for materials, merchandise, or services furnished to the State of Washington and that all goods furnished and/or services rendered have been provided without discrimination on the grounds of race, creed, color, national origin, sex, or age and that expenditure for such goods and/or services have benefited persons enrolled in vocational education classes in accordance with the State Plan for Vocational Education; further, that documentation of reported expenses is readily available for audit.

Submit in duplicate to the Office of the Director of Vocational Education, Superintendent of Public Instruction, P. O. Box 527, Olympia WA 98501

___________Date___________
Signature of Superintendent or designee

Checked and Approved for Payment:
By___________
By___________

Date	Amount	Voucher No.	Warrant No.

Form DVE-70-5a

INSTRUCTIONS FOR COMPLETING
EXPENDITURES REPORT AND CLAIM FOR REIMBURSEMENT
UNDER P.L. 90-576, FORM DVE-70-5

GENERAL INSTRUCTIONS

1. Form DVE-70-5 is to be used only by local school districts.

2. As many separate reports of expenditures and/or claims for reimbursements should be submitted as is necessary to avoid conflicting classifications of the programs, services, and/or activities described in sections A through E, and to establish complete reporting of all expenditures for any/all programs, services and/or activities. (Include total vocational program whether funded by state or federal, except as in Item 3, below.)

3. Form DVE-70-5 serves a dual purpose: (1) for requesting or claiming payment of federal vocational funds within the predetermined allotments; and (2) for reporting all expenditures for all vocational education during the fiscal year ending June 30, exclusive of MDTA or direct USOE special grants.

   Requests or claims for payment or reimbursement from funds under P.L. 90-576 should be made as soon as incurred expenses are known and can be documented, but no later than June 15. Reimbursements can be made as soon as funds are available.

   The completed reports of all expenditures for vocational education programs, services, and activities are due in the Office of Program Administration, State Division of Vocational Education, by September 18. This presupposes that the complete set of reports will be in the Office of the Director of Vocational Education, Superintendent of Public Instruction, by September 4. These reports provide the basis for matching and overmatching of state and local funds with federal funds.

4. The certification of each report must be signed by the District Superintendent, or a designee whose signature has been authorized, as the local official responsible for certifying accuracy and completeness of the report(s) or claim(s).

   Full documentation of the complete report of expenditures must be maintained locally and need not be attached to the Form DVE-70-5 when it is submitted. The locally maintained documentation of expenditures satisfies the provisions of the Washington State Plan for Vocational Education, Part I, paragraph 2.5--AUDITS.

SPECIFIC INSTRUCTIONS

1. Claimant. Provide complete identification of the local education agency as the payee.

2. Fiscal year. Indicate the end of the fiscal year in which the reported programs, services, or activities occurred.

3. Time period covered. Indicate the beginning and ending dates of the time period covered by each report. A consecutively dated series of reports within each category in sections A-E will provide year-to-date information on expenditures for the whole year.

4. Section A. Identify the level of instruction or type of school in which the reported programs, services, or activities were offered.

    Elementary - a program designed for children in grades 6 or below.

    Secondary - a program designed for youth in grades 7-12.

    VTI - check here if programs, services, or activities reported are offered at a vocational-technical institute.

5. Section B. Identify the type of program.

    Preparatory - an organized program of study in preparation for entering the labor market or retraining for new occupations or for the work of the home.

    Supplementary - an organized program of study for persons who have already entered the labor market or the work of the home and need training to be updated or upgraded to achieve stability or advancement in their current employment. (Usually the above describes adult education [part-time] programs.)

6. Section C. Identify the type of students served. All expenditures for programs, services, and activities are for regular students unless they are disadvantaged or handicapped.

    Disadvantaged. Supporting documentation on expenses for services to the disadvantaged must be maintained locally (not attached to this report) and readily identifiable with any claim for reimbursement of such expenses. Ordinarily, the expenses for such services must be rendered to identifiable individuals whose academic, socioeconomic, and/or cultural handicaps must be improved to enable them to function successfully in ordinary vocational classes.

    Handicapped. Supporting documentation on expenses for services to the handicapped must be maintained locally (not attached to this report) and readily identifiable with any claim for reimbursement of such expenses. The handicapped are those persons with physical or mental impairments. Ordinarily, the expenses for such services must be rendered to identifiable individuals whose impairments have been identified and for whom supplementary educational services would enable them to function successfully in ordinary vocational classes.

    Separate reports are necessary for each of the above types.

7. Section D. If the programs, services, or activities reported are for Home and Family Life Education, identify the proper description of

the community (area) being served, as non-depressed (economically) or depressed, as designated in Washington State Plan for Vocational Education, Part II.

8. Section E. Check one description if applicable in describing the reported programs, services, and activities.

   Contract with private schools - Identify here if program being described and reported qualifies under paragraph 1.8, "Vocational Education Under Contract," State Plan for Vocational Education.

   Research Grants - Identify here any research grant for programs, services, and activities supported under Part C of P.L. 90-576.

   Construction -
   - Area Vocational School - Identify here if area vocational school construction is supported under Part B of P.L. 90-576.
   - Residential School - Identify here the construction supported under Part E of P.L. 90-576.

   Operation, Residential School - Identify here if operating costs of residential schools are supported under Part E of P.L. 90-576.

   Cooperative (Special) - Identify here only if programs, services, and activities are supported under Part G of P.L. 90-576.

   Work-Study - Identify here only if programs, services, and activities are supported under Part H of P.L. 90-576.

   Exemplary - Identify here any programs, services or activities supported under Part D of P.L. 90-576.

9. Section F. Supporting documentation of expenses reported for programs, services, and activities must be maintained locally (not attached to this report) and such documentation must be readily available and identifiable with any claim for reimbursement of such expenses.

   Instructional costs are typically inclusive of expenditure categories 1-5. These are classroom instructional costs only, (i.e., State Account Code Numbers 25-1, 25-4, 25-5, 25-6, 25-8 and 66-7).

   Instructional Equipment is that equipment used in classroom instruction. Expenditure categories 6 and 9 require inventory and maintenance documentation (Form DVE-70-7) as noted on Form DVE-70-7 when Federal funds are requested to support those expenditure objects. Expenditures for initial equipment of new buildings must not be included. (State Account Code 25-9, 25-7.)

   Supporting Services for purposes of classifying vocational program expenditures are listed in categories 10-14.

Guidance & Counseling (line 10) includes expenditures for salaries, supplies, travel, and other expenses directly related to guidance and counseling programs, services, and activities, including group guidance (prevocational). (State Account Code sub-functions 28 & 33)

Employer Reimbursement (line 11) is a category applicable only under special arrangements when necessary added costs are incurred by employers in providing cooperative work experience to vocational education students under Parts D and G of P.L. 90-576 (State Account Code 27-7).

Student Service (line 12) is a category applicable only under special arrangements when expenses for unusual costs are incurred by students as a result of their enrollment in a cooperative work experience under Parts D and G of P.L. 90-576. (State Account Code 25-7)

Student Compensation (line 13) is a category applicable only when expenditures have been made for compensation of students employed in work-study programs as under Parts D and H of P.L. 90-576. (Code according to work area.)

Other (line 14) supporting services could include transportation costs, pupil services and miscellaneous pro-rated costs as per instructions provided on SPI Form A-57-1, and accident and liability insurance for trainees and employees.

Construction (line 15) is applicable when area vocational schools or residential vocational schools have been approved under provisions of P.L. 90-576. Expenditures may include activities related to acquisition, grading and improvement of land on which there is to be construction and planning, acquisition, construction, remodeling and alteration and related architectural, engineering, and inspection services related to vocational education facilities including residential vocational schools. Include, also, expenditures for initial equipment which is part of the construction contract. (State Account Code 73-9-41)

Ancillary Services (line 16). Report here expenses for salaries, travel, and other costs related to the activities of administration, supervision, evaluation, teacher education, research, and curriculum development.

Allocated Undistributed Costs (line 17). Use instructions on Form A-57-1 for pro-rating all undistributed costs. (Program 00)

Expenditures Report column. Refer to item 3, General Instructions, above. An accurate report of total program, service, and activity expenses is required for the total vocational education program in each school district. Expenditure reports should cover specific periods of time--the period of time being shown on the top part of Form DVE-70-5. Two or more reports/claims about the same programs constitute the cumulative record for those programs, services, and activities. Reports of total program expenditures, exclusive of MDTA or direct USOE special grants, may be made as soon as the programs, services, and activities described in sections A through E have been completed, but no later than September 4. The total of all expenditures reported from all reports made during the year must agree with the total program cost reported for Program 28, Vocational Education--Secondary and/or Program 85, vocational-technical schools, as shown on Form A-57-1, Part II. These reports provide the basis for accurate information on matching and overmatching of state and local funds with federal funds as required by the State Plan for Vocational Education, and also documents the excess cost for vocational education.

Claim for Federal Funds Requested column. Refer to item 3, General Instructions, paragraphs 1 and 2. Requests for payment or claims for reimbursement from funds under P.L. 90-576, within pre-established allotments, should be made as soon as expenses are known and can be documented (not attached) but no later than June 15.

Local administrators will determine which line item category they wish to have supported with federal funds. The items which indicate categories receiving federal support need not match line by line the expenses reported on corresponding lines in the Expenditures column. Only the grand total reflects the matching or overmatching of state and local funds with federal funds.

Certifying Signature. See item 4 under General Instructions, above.

WISCONSIN

GENERAL PROGRAM GOALS

Recognizing and accepting the fact that the impact of technological and economic change has created new occupational requirements, the Wisconsin Board of Vocational, Technical, and Adult Education states that it is "committed to the challenge that persons of all ages in all communities shall have ready access to vocational, technical, and adult education based upon individual needs, interests and abilities." More specific goals are set forth as follows:

1. To provide programs and services to youths and adults enrolled on a full-time and part-time day or evening basis, in residence as well as through field services;
2. To provide educational opportunities that will contribute to effective performance in related occupational areas in the fields of agriculture, business, distribution and marketing, health, home economics, trade and industry, and other personal and public service and interdisciplinary fields;
3. To provide general educational experiences to support the specialized vocational educational experiences required by the people for effective functioning in a changing technological society;
4. To provide special services and programs to the disadvantaged and handicapped;
5. To support an "open door" admissions policy;
6. To develop cooperative arrangements with other public and private agencies in order further to meet the health, education, welfare, and employment needs of the people;
7. To seek modifications in organizational structures, administrative policies and procedures, and instructional methodologies, as well as to continue placing emphasis on personnel and leadership development to meet current and future educational challenges.

The Wisconsin Board has established the following student enrollment goals for 1974. Figures represent the proportions or numbers of various elements of the population expected to be enrolled in at least one vocational education course.

1. 25 percent of secondary vocational education graduating seniors entering post-secondary vocational programs;
2. 60 percent of secondary vocational education graduating seniors available for work, placed in jobs following their training;
3. 3.65 percent of the population, age 19-24, enrolled in post-secondary vocational education; 92 percent of post-secondary (2-year) students;

4. 2400 handicapped students enrolled in post-secondary and adult vocational education. (The number of handicapped secondary students was not available, nor was the percent of disadvantaged students enrolled in vocational education);

5. 5 percent of the population, age 19-64 (in adult vocational education).

In Wisconsin, enrollment projections by program and grade level could not be obtained for 1975. Although the State Plan made projections for 1974, these indicated only the number of students who would graduate from vocational education programs and enter the labor market. Therefore, only percentages of student enrollment projections by program and grade level could be obtained. Tables A-29 and A-30 show these percentages, as estimated changes of enrollment that will have occurred by 1975.

COST ANALYSIS

Wisconsin is developing a computerized system for its two-year, post-secondary vocational-technical school system, which is operated by the State Board of Vocational, Technical and Adult Education. It is hoped that this system will provide cost data by program.

For the 1968-1969 school year, the auditing department of the Board summarized the following cost and attendance data:

1. The cost figures exclude: (a) long-term debt and interest; (b) construction; (c) equipment purchased on a long-term basis; (d) non-resident attendance and tuition; (e) MDTA programs.

2. FTE's are defined as: (a) full- or part-time students - 22.5 contact hours per week per semester; (b) apprentice students - 650 contact hours per year.

3. State data for two-year, post-secondary vocational, technical and adult schools:

	ITEM	COST	FTE's =	COST/FTE
a.	Non-aidable costs	$ 1,315,163.32	$ ---	$ ---
b.	Full-time students	22,996,234.41	19,989.11	1,150.43
c.	Apprentice students	1,850,820.00	1,129.88	1,638.07
d.	Part-time students	10,274,582.84	5,594.92	1,836.41
	TOTALS	$36,436,800.57	$26,713.91	$1,363.96

Comparable figures were not available for secondary schools.

DETERMINATION OF EXCESS COST

Excess costs are considerations in Wisconsin's allocation of Part B Federal funds. At the secondary level, examples of excess cost items are:

Table A-29

Percent of Vocational Education Enrollment in Wisconsin by Program and Sex for 1967, 1969, and Estimates for 1975

Program	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Agriculture	29.59	.15	16.91	26.53	.38	14.39	23.00	.50	13.00
Distributive	4.10	4.02	4.06	6.08	3.94	5.09	8.00	4.00	6.00
Health	.12	5.10	2.26	.27	6.17	3.01	.50	7.00	3.00
Home Economics (Gainful)	1.05	53.63	23.70	.67	47.85	22.57	.50	43.00	21.00
Office	9.24	32.15	19.11	8.87	37.38	22.10	7.00	40.00	24.00
Technical	4.56	.00	2.60	8.47	.19	4.62	11.00	.50	6.00
Trade & Industry	51.34	4.95	31.36	49.11	4.09	28.22	50.00	5.00	27.00

Table A-30

Percent of Vocational Education Enrollment in Wisconsin by Grade Level and Sex, for 1967, 1969, and Estimates for 1975

Grade Level	1967			1969			1975		
	M	F	T	M	F	T	M	F	T
Ninth	5.37	7.92	6.46	5.32	6.01	5.64	5.58	6.48	6.00
Tenth	5.25	4.97	5.13	5.21	4.06	4.67	5.46	4.37	4.96
Eleventh	5.48	4.35	5.00	9.99	12.57	11.20	10.48	13.55	11.90
Twelfth	7.00	10.71	8.59	9.43	13.62	11.40	9.89	14.69	12.11
First Year College	7.23	5.12	6.33	10.59	7.25	9.02	17.12	12.05	14.78
Second Year College	2.68	.93	1.93	3.43	.97	2.28	5.54	1.62	3.73
Adult	65.23	65.22	65.22	53.70	53.02	53.38	38.69	39.28	38.96
Special Needs	1.52	1.24	1.40	2.34	2.50	2.41	7.24	7.95	7.57

(1) summer employment of instructors; (2) additional weeks of employment for various vocational education activities; (3) released time from normal teaching duties for planning or administering the cooperative education programs; (4) initial costs of unusual high amounts for new programs.

Excess costs at the post-secondary level are the result of differences in the cost to districts of materials and services and of the necessity of supplying special services (other than to handicapped or disadvantaged students) such as transportation; or of excessive maintenance costs for outdated buildings.

Wisconsin's State Plan provides that in determining excess costs the total costs for district operations and for each program area, excluding debt service and transportation of students, are computed annually for each district and each program, and that information for computing program costs is obtained from district financial records, budgets, and annual statistical reports.

Data summarizing excess costs were not available in Wisconsin. Form VE-AS-201 (see Exhibit XIX), used by local districts to report budget and final expenditure figures, does not include a computational procedure to identify excess costs. Hopefully, the system under development will increase availability of excess cost data as referred to in the State Plan.

ALLOCATION OF VOCATIONAL EDUCATION FUNDS

Part B Federal funds are allocated on a project basis in Wisconsin. Included in the general instructions for submitting a project is the direction that "Project proposals should be consistent with the objectives stated in the state or district plan, and mission statements, existing district plans or related studies."

The State Director of Vocational, Technical and Adult Education, under the direction of the Wisconsin Board of Vocational, Technical and Adult Education, has the responsibility for reviewing and funding both secondary and post-secondary school projects. The post-secondary vocational schools are under the Director's supervision. The secondary schools are supervised by the State Superintendent of Schools' staff. Section 3.20 of the Wisconsin State Plan - Part I states: "All projects approved by the Department of Public Instruction supervisors are forwarded for further review and endorsement by the Program Administrator of Vocational Education."

Part B funds for the 1969-1970 fiscal year were apportioned so that the secondary schools received 40% of the total Part B funds available, and the post-secondary schools received 60%. This division of funds was based on census projections of students age 17 and older.

A memorandum from the State Director to grantee districts summarized two major findings regarding the 1969-1970 proposals and funding:

1. The Federal funds for the apprenticeship, extension and equipment programs were grossly insufficient to meet the stated needs. $2,169,177 was requested and only $883,610 was available.

2. There was insufficient proposals to use all the Federal funds available for disadvantaged and handicapped programs in an effective manner. It was necessary to recommend allocation of these funds at 100% in order to expend them. This was because:
    a. Program efforts were insufficient;
    b. There was a lack of experience in offering these programs within the definitions set forth in the new legislation.

Evidence indicates that the situation exists primarily because of inexperience and insufficient time allowed for preparing the necessary proposals.

The State Director of Vocational Education staff uses a rating sheet to judge district project proposals, Form VE-AS-217 (see Exhibit XX). The rating sheet comprises the following evaluation criteria and weightings:

1.	Manpower needs	30 points
2.	Vocational needs	15 points
3.	Excess costs	15 points
4.	Relative ability to pay	20 points
5.	Schools in economically depressed areas	5 points
6.	Schools in high dropout or youth unemployment areas	5 points
7.	Demonstration or pilot projects	10 points
	TOTAL	100 points

The projects receiving the highest point ratings are funded first.

EXHIBIT XIX

Wisconsin Board of Vocational, Technical and Adult Education

FINANCIAL REPORT
VE-AS-201
Voc. Ed. Amendments of 1968

1. Project No.____________________

2. Project Title____________________

3. ☐ Budget Proposal ☐ Revision ☐ Expenditure Report ☐ Final Report

4. Report Period From____________________ To____________________

	Amount	Requested Amount	Approved Amount
5. SALARIES			
a. Supervisory	$		
b. Guidance Counseling			
c. Clerical			
d. Custodial			
e. Instructional			
f. Other Supporting Salaries Itemized		$	$
6. EQUIPMENT			
a. Repairs & Services			
b. Rental of Instructional Equipment			
c. Instructional Equipment			
d. Other Capital Expenditures			
7. CONSTRUCTION			
8. TRAVEL			
9. INSTRUCTIONAL MATERIALS AND SUPPLIES			
a. Audio Visual Aids			
b. Reference Books			
c. Textbooks and Work Books			
d. Supplies and Materials			
10. OTHER COSTS			
a. Rental of Space - Not in Building			
b. Utilities			
c. Other Costs Itemized			
11. Total Cost			
12. Federal Funds	%		
13. Matching Funds	%		

14. Director or Administrator ________________ Date ____________________ Signature

EXHIBIT XX

Wisconsin Board of Vocational, Technical and Adult Education

State Evaluation Criteria
Part B, Regular
VE-AS-217

(For State Office Use Only)

Project No.__________________
Project Title__________________
____

LEVEL CHECKED SCORE COMMENTS:

1. MANPOWER NEEDS
Weight 6 Points 30
Employment needs severe or great--5 ____
Employment needs mild or slight---3 ____
Employment needs not evident------0 ____

2. VOCATIONAL NEEDS
Weight 3 Points 15
Service to special target groups---- 5 ____
Service to regular groups----------3 ____

3. EXCESS COSTS
Weight 3 Points 15
Unusual, high costs----------------5 ____
Normal costs---------------------3 ____

4. RELATIVE ABILITY TO PAY
Weight 4 Points 20
Median or below median valuation---5 ____
Above median valuation------------3 ____

ADDITIONAL CONSIDERATIONS:

5. Schools in economically depressed areas----------------------------5 ____

6. Schools in high drop out or youth unemployment areas--------- 5 ____

7. Demonstration or pilot projects----10 ____

TOTAL POINTS POSSIBLE = 100 ____Total____

Recommendation: Approve____ Dissapprove____ Defer____ Return to Applicant____

Comments: